SIERRA CLUB BULLETIN

VOLUME XVI FEBRUARY, 1931 NUMBER 1

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Published Bimonthly by the Sierra Club, San Francisco, California.

Address all communications to the Secretary of the Sierra Club, 402 Mills Building, 220 Montgomery Street, San Francisco, California.

The annual dues of the Sierra Club are $4.00 (first year, $5.00), of which $1.00 is for subscription to the SIERRA CLUB BULLETIN.

The price of the magazine is 75 cents per copy.

Entered as second-class matter at the Post Office at San Francisco, California, under the Act of March 3, 1879.

Printed by TAYLOR & TAYLOR, *San Francisco*

Photograph by Ansel Easton Adams

Taken for Sec. Interior Album

Half Dome, Yosemite

SIERRA CLUB BULLETIN

VOLUME XVI NUMBER I

FEBRUARY

1931

TWENTY-NINE YEARS WITH THE SIERRA CLUB

By William E. Colby

HOW can memories and experiences of twenty-nine years be compressed into a few pages? I have been asked to write my impressions acquired during twenty-eight years of active management of the annual outings of the Sierra Club, and also of the twenty-ninth outing, when I went along merely as one of the party—a detached onlooker, as it were.

It seems almost incredible to realize that, averaging as these trips have about a month each, I have spent more than two years of my life with the Sierra Club in the mountains. These have been full years, replete with rare memories—some of my choicest experiences. Incidents awakening supreme joy, delicious bits of humor, touches of pathos, inexpressible sorrow, even involving matters of life and death, have all played their part on this out-of-doors stage during this quarter of a century and more that I, like a modern Moses, literally have led the disciples of John Muir into the High Sierra wilderness. The rare friendships I have made have far more than compensated me for the many hours of labor, worry, and responsibility involved.

When I first became secretary of the Sierra Club, some thirty years ago, the Mazamas, with headquarters in Portland, Oregon, had just been conducting some very successful summer outings into the moun-

tain regions of the Northwest. Reading of these expeditions made me realize that this strengthening feature was entirely lacking in the life of the Sierra Club. I presented the possibility of such outings to the directors. Some were favorably inclined, but others expressed great pessimism, stating that individual members preferred to organize their own parties, and that there would be no great response to an outing which involved a crowd where members would be forced to "rub shoulders" in a strange group. Rather dubious about the outcome, they finally granted the authorization to conduct such an outing, but with the distinct understanding that the club treasury was not to be in any way responsible for any obligations incurred.

It was from John Muir, however, the president of the club, that I received the warmest encouragement. He was highly enthusiastic, and told me that he had long been trying to get the club to undertake just such outings. Without his whole-hearted support, I would not have dared to embark upon such an enterprise, with its multiplicity of new and untried problems. Just about this time another bit of good luck occurred. Edward T. Parsons had recently established headquarters in San Francisco. He had been with the Mazamas on some of their outings, and in fact had been an active member of one of their committees in charge, so that he was familiar with some of the problems that had to be solved. Together we labored over the initial preparations.

The first outing announcement was a remarkable product. In the advice regarding outing costumes suitable for women to wear in the mountains, it was suggested that skirts should reach "halfway to the knees," and this at once provoked the natural question as to whether the measurement was to be made from the ground or from above. It illustrates the fact that in the year 1901 it was difficult for women to get a comfortable and serviceable costume without having it specially made. A few emancipated females wore bloomers on mountain climbs. These garments gave the desired freedom, but transgressed all laws of esthetic standards. For many years skirts persisted, but they grew scantier in length with each succeeding year, and finally the yoke was entirely thrown off, though not without much amusing opposition on the part of those who thought that somehow or other fundamental modesty rather than mere custom was involved. The present-day knickerbockers, or hiking trousers, have now been accepted as altogether the most comfortable and fitting garb for high-

mountain travel, and women are now clad as appropriately as men.

Pioneering on untrodden ground, the Outing Committee had much to learn, and it took several outings, in which extensive pack trips were involved, and many sad experiences, before the basic problems were solved. Had I realized all the grief that was to follow, as well as the nervous strain of the tremendous responsibility, I probably would have reconsidered and canceled the plans. But, blissfully ignorant of the perplexing problems, youthful enthusiasm carried the day. Many abnormal conditions arose to make the task all the more difficult. A heavy snowfall in the winter of 1900-1901 had broken most of the important bridges on the Tioga Road. Fortunately the owners of the road put a crew of men to work and saved the day by repairing these bridges in the nick of time, and our freight-teams were delayed only two or three days in consequence. We even had to blast out heavy drifts of snow to get the teams through.

The trip as a whole, however, proved such a success that, instead of deterring me from further efforts, I immediately began planning for a much more ambitious outing the following year. I have always felt that a large part of the success of the first trip was due to the fact that there were so many distinguished members of the party. John Muir had promised me that he would personally accompany us, and, besides his two daughters, Wanda and Helen, he brought with him William Keith, the landscape artist, and Dr. C. Hart Merriam, of the United States Biological Survey. We also had with us Theodore Hittell, the historian, and many prominent professors from both Stanford and Berkeley. Dear old Professor Joseph Le Conte, the eminent geologist, was to have been with us, but his untimely death in Yosemite Valley a few days before the expedition started, cast a gloom over the party that it was impossible to throw off. All of us had such a genuine affection for "Professor Joe" that his loss meant more to us than any other single thing that could have happened. However, after we got started we found that John Muir's favorite prescription as a cure for sorrow and suffering—either to climb a mountain or go up a cañon—brought about a wonderful recovery, and made us all realize that there is an inspiration in the out-of-doors which is the best possible remedy for sorrow and depression, both physical and mental.

The second outing, to the Kings River Cañon, involved what we then considered an ambitious pack trip into the cañon from Mill-

wood; but it was a very simple matter compared to the extensive itinerary through high-mountain country followed on our recent outings. We arrived in Millwood late in the afternoon, after staging fifty or sixty miles in horse-drawn vehicles, involving a heartbreaking climb of several thousand feet from the San Joaquin Valley. We found a few of the advance-guard already there, and also learned that some of the mules intended for the pack-train were just being broken in for the next day's pack trip, never having had anything on their backs before that day. The system supplying the hotel with water had been completely ruined, consisting as it did of a small V-shaped trough crossing the road at just about the height of a rider on the back of an animal. One of these unbroken mules had dashed under the trough, and though he managed to rid himself of his human burden, the trough was demolished in the process. Another amusing incident of that day was the attempt of one of the girls in the party to ride a large pig down the main street.

The advance-guard, who had stayed the night before at the log hotel used in connection with the lumber-camp operations, reported that the hotel had altogether too many inhabitants for comfort and preferred to abandon the last chance to sleep indoors for the quieter life in sleeping-bags out under the pines and stars.

On the 1901 outing, we had used a famous "Buzzacott Army Range," made particularly for Philippine service. Most of the freight was hauled in over the old Tioga Road by team. It was therefore comparatively easy to transport this stove, which weighed almost 250 pounds, into the Tuolumne Meadows and out again. The year following, the stove was sent down to Millwood for the 1902 trip, and the Kanawyers performed the miraculous feat of packing it, on mule-back, some thirty-five miles into the Kings River Cañon. It is needless to say that it was never packed out, and still reposes somewhere in the cañon. On its iron door was this verse in raised letters, cast into the door itself:

"Use this stove right
And it will treat you well,
But always remember
That nothing can stand h—l."

We have since evolved what is known as the "Sierra Camp Stove," a light sheet-iron stove with a detached aluminum sheet top and telescoping stovepipe which fits in the oven. The total weight is only

125 pounds, and with careful packing it can be readily transported on muleback. Stoves of this type can be set up and a fire started within a few minutes of arrival in camp. Three such stoves are ample for a party which totals 250 persons. The stoves are supplemented by three telescoping, cylindrical stock pots, the largest of which has a capacity of twenty-five gallons, and is used for making soup.

Most of the cooking utensils are aluminum, and so far as possible are made to nest one within another. They have given excellent service and wear. The cups are made to order, of pressed tin, with a wire in the rim and forming the handle, which is made so the cups will nest or can be hung on the belt. Each has the name of the club stamped on the bottom. They are patterned after similar cups made for the famous Appalachian Mountain Club, of Boston and the East. At the outset of the trip each member of the party is provided with a cup and a spoon, which are carried at all times. Besides their regular use at meals, they have on several occasions proved particularly useful in emergencies.

Meals are served cafeteria style. The members line up and secure their knives, forks, aluminum plates, etc., and pass toward the center of an improvised serving-line where the various articles of food for that particular meal are served, largely by volunteers from among the women of the party. This plan was adopted on the first outing, and by this method meals are served with the least possible confusion and the greatest possible expedition.

It is of course of prime importance that food for such a trip be of good quality and of sufficient variety, yet without undue weight. In the earlier years I made a careful study of this vital problem, reading books on dietetics and consulting lists of army rations, as well as investigating suggestions by authorities on outdoor life and camping. The character of the meals and the balance of the rations served on Sierra Club trips have received the highest praise from expert dietitians and physicians who have been on these outings.

For breakfast there is a choice of coffee or chocolate, stewed fruit of some sort, the standard cereals, corn bread when the party is moving from day to day, or hot cakes whenever it is in permanent camp. There is also provided either ham or bacon, or some form of protein, such as baked beans.

Luncheon while on the march consists of a choice of hardtack (pilot bread) or Swedish rye bread, or both, and sometimes Italian

galetta, a piece of chocolate, dried fruit (seedless or seeded raisins, and either figs, prunes, or dates), a piece of American cheese, together with sardines, deviled ham, or some sort of meat, such as *salame,* or cervelat sausage, etc. The luncheon is given out the night before, immediately after dinner, so as to interfere as little as possible with breaking camp the next day.

Dinner consists of a savory soup, some sort of meat, two vegetables, and dessert. There is nothing like a cup of hot, nutritious, appetizingly flavored soup with which to start a meal after a hard day's hike or mountain climb. Our present chef, whom we have had for many years past, the unreplaceable Dan Tachet, is famous for this introduction to each evening meal. Occasionally fresh meat is packed in, a whole beef being consumed in three or four days; but great reliance is placed upon a fine grade of ham and bacon. Canned corned beef, and fish of various sorts, complete the meat selection. The vegetables consist of corn, string beans, tomatoes, rice, spinach, etc. A very high grade of dehydrated vegetables is an excellent light-weight product when prepared properly, but there is sometimes a little uncertainty about the grade and the source of supply. For dessert we have puddings, which come in dry, powdered form easy to prepare. These are varied with cake and stewed dried fruit. Tea is served with dinner, with sometimes a choice of coffee. On account of the saving in weight, dry, whole powdered milk is used almost exclusively. When properly mixed with water, this provides an excellent substitute for fresh milk, and in recent years its manufacture has been perfected to a high degree.

Of course, it requires experienced judgment to determine in advance the amount of food that will be required on one of these trips. The quantity of the various articles taken will from year to year depend somewhat upon price. Many years ago I arrived at a rough approximation of an allowance of three pounds per person per day of actual food in bulk, which has been accurate enough for all practical purposes. It even allows a small margin for safety, for it is advisable to have a safety factor of five or ten per cent in such an important item as food. The three pounds is a gross unit weight, including the weight of containers. It would not be sufficient for a party relying extensively on canned goods, particularly canned fruit, which contains a large water-weight factor.

One of the most variable items is sugar. In the higher altitudes,

BEAR CREEK SPIRE, FROM ROCK CREEK
Photograph by Ansel E. Adams

BEAR CREEK SPIRE, FROM ROCK CREEK
Photograph by Ansel E. Adams

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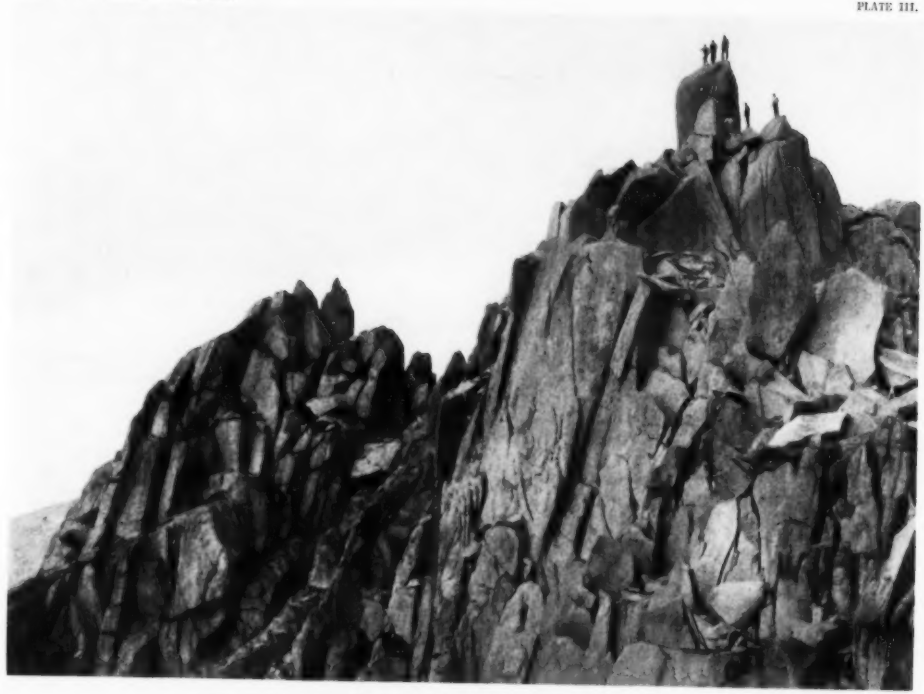


SUMMIT OF THE HERMIT
Photograph by Ansel E. Adams

where members of the party are climbing and hiking strenuously, the unit consumption of sugar increases materially, and the same is true when the weather is colder than usual. This is on account of the physical demand for more carbon, which is literally burned up by the body in strenuous exercise, and which enables one the better to resist cold. The amount of sugar required also depends upon the amount available in other forms of food—dried raisins, dates, figs, all have a considerable sugar content, as have some of the prepared foods, such as sweetened cocoa and puddings. It has not been at all unusual for some of our parties to consume between three-quarters of a ton and a ton of sugar during one outing of a month's duration.

I have already mentioned the dried fruits; but their value is worth emphasizing. They act as a most desirable and appetizing balance to the more starchy foods—raisins, particularly, have a high food value in themselves. Enos Mills, of Colorado, who used to start out on many of his hikes with only a pocketful of raisins, gave strong testimony of their value for strenuous trips.

Of course, even the best of food can be ruined by poor cooking, and a good cook has always been one of our most important considerations. In the early days of the outings—for thirteen years, in fact—we were fortunate enough to have the services of dear old "Charlie Tuck," one of the old-type Chinamen, faithful and loyal to an extreme. He grew to be very fond of the mountains, as well as of the members of the outing parties collectively, and while he lived nothing could have induced him to miss a trip as chef of the Sierra Club. Of all the Chinamen I have known, he had the jolliest, the most jovial disposition, and he was usually joshing or joking with some member of the party, even while he carried on his work. He called the girls by their first names, and surprised many of the staid members who had been on previous outings by telling them a lot of their family history, which he had learned the winter before, in Chinatown, from Chinese employees of their families. I shall never forget the night he rode into the light of our blazing camp-fire above Lake Merced, in 1907, when it was still a real wilderness. He had missed the trail, and had ridden in the saddle thirty-two miles over rough mountain country, the last hour or two of it in pitch dark, and it was between eight and nine o'clock at night when he arrived. His sense of responsibility and loyalty had kept him going under circumstances in which others would have given up and turned back. Nor shall I

Photograph by Ansel E. Adams

soon forget the morning in 1913, in Tehipite Valley, when he appeared in camp garbed in long yellow slicker and broad sombrero, both of which he had acquired through the "Lost and Found," and with a very sheepish look on his face. He had missed a crossing log on the Middle Fork of Kings River and had spent the night out in a drizzling rain. Unfortunately, gin was at the bottom of this mishap, for though at one time Charlie Tuck reformed, it was only for two or three years following the earthquake fire, during a period of conversion by a Baptist mission. I can testify that Chinese gin must be a very potent intoxicant, judging from its effect on poor Charlie, for the quantity he concealed in his dunnage-bag could not have been very great. This fall from grace did not happen often, however, and the result was usually more ludicrous than otherwise. When Charlie Tuck passed away, in the winter of 1914, he left, for all of his Mongolian ancestry, many devoted admirers in the Sierra Club.*

Then for a short period we had Toy Gong, Charlie Tuck's understudy, who proved to be a most excellent successor. He became a captain of industry, however; for very shortly the raising of potatoes and onions in the San Joaquin Delta and the opening of a chop suey restaurant in Stockton made his interests too important to leave for even the month's duration of the outing.

In 1920 we had considerable difficulty in securing a suitable successor on short notice, but finally, at the last moment, in desperation, we turned to Colonel Jones, who was recommended to us as being an excellent cook and as having had considerable experience in the mountains. As a cook he sustained his reputation in most respects, particularly as far as Southern dishes were concerned. His corn bread and baked ham were inimitable, but his raised biscuits might have served better in the bombardment of enemy trenches. He brought with him as his help three other darkies, who were as incompetent and lazy as he was capable and industrious. The entire burden of routing out the help and getting things started in the morning was transferred to the Outing Committee, and, while the outing was a great success, we never had a more difficult problem as far as the commissary was concerned. The Colonel had been a revivalist preacher in early days, and the oration which he delivered at the last camp-fire will always remain one of the outstanding classics in out-

* A memorial notice was published in SIERRA CLUB BULLETIN, 1914, vol. ix, no. 3, p. 184, accompanied by a photograph of Charlie Tuck.

ing history, particularly the closing anecdote, where "the cat done ate up the Holy Ghost."

In 1921 we had the good fortune to secure the services of Dan Tachet, and ever since then he has been the presiding chef of these annual trips. He combines rare qualities for the position. Through his Swiss ancestry he has inherited a genuine appreciation of the mountains, and on the French side cooking has become an art for him. Moreover, he has back of him a remarkable record as chef in some of the leading resorts of the West, such as those at Tahoe and the Grand Canyon. It is a rare combination, and, with his pleasing personality, it would be hard to conceive of anyone better fitted for this very important post.

Considering the character of the outings which the club takes into the High Sierra, involving traveling for long distances on mountain trails, the pack-train is probably the most vital institution of the whole trip. Upon the satisfactory transportation of food and personal equipment, including the all-important sleeping-bag, the success or failure of the outing depends. On the outings with maximum attendance of 220 regular members and 50 packers and members of the commissary staff, it has been necessary to transport more than ten tons of provisions and over five tons of dunnage-bags and commissary equipment. On the earlier outings, missing dunnage-bags and delayed pack-trains were a common occurrence. In spite of precautions based on sad experience, many were the occasions for all-night vigils around the camp-fire.

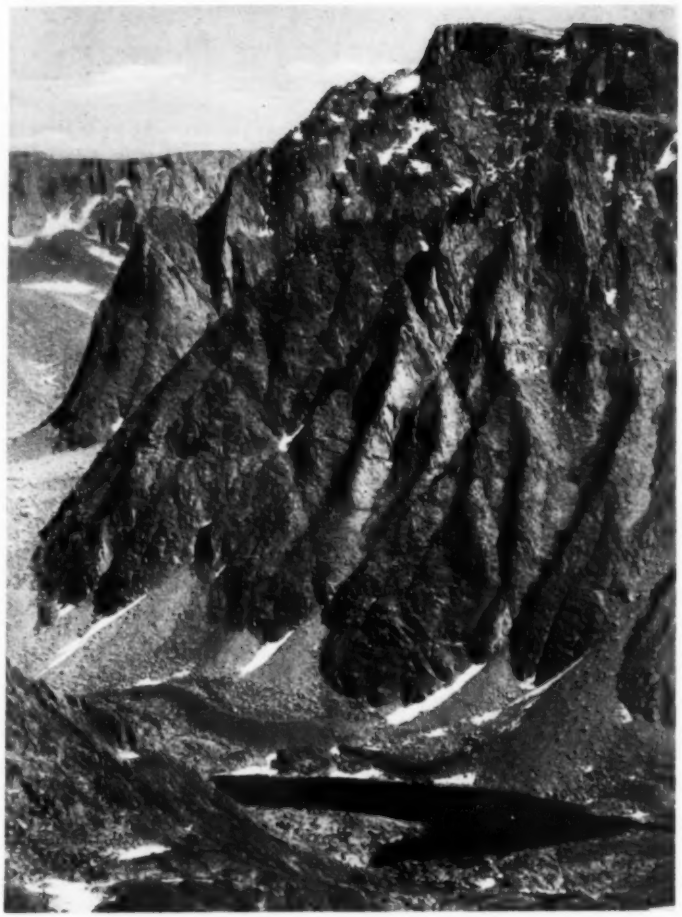
In recent years these difficulties have been solved, so that entire outings of a month each have passed without so much as a single dunnage-bag being misplaced or a meal delayed on account of the late arrival of pack-trains. Instead of the "hit-or-miss," happy-go-lucky attitude on the early trips, of those responsible for the management of the pack-train, we now have the pack-animals divided up into definite units which travel together, with some responsible person in constant attendance to see that everything is functioning properly. To begin with, we have a reliable owner and manager of the pack-train in Allie Robinson, of Independence, California, who has had sole charge for several years past. We profit by his long experience with the club, and also by the fact that each year he has been successful in improving the personnel of the packers. We have also profited by experience acquired in Glacier National Park, and we

now have trained "night-hawks," or men who herd the grazing pack-animals at night, and keep them rounded up so that there is no longer any question about an early start in the morning.

An early start on the days that camp is being moved is one feature which has meant much to the success of these expeditions. By calling the party early and having everything in readiness, as far as possible, the night before, we manage to have breakfast served, dunnage-bags packed, and everything ready for the pack-train by six or seven o'clock in the morning. Members of the party have practically twelve hours in which to make the hike to the next camp and still arrive in time for dinner. As a matter of fact, many of them arrive there by noon and have the remainder of the day for side trips, fishing, or resting. Each member of the commissary has his special work in getting the equipment ready for the pack-train, so that there is little waste effort, and the entire party moves with precision and with even greater flexibility than do divisions of the Army.

All of this has resulted in increased cost of the pack-train, and while in the earlier outings I figured roughly that the pack-trains cost one-third, the provisions one-third, and the salaries and railroad fare of the commissary helpers and incidental expenses the remaining one-third, the cost of the pack-train has now risen to nearly one-half the entire expense.

Many have commented on the low cost of these outings per person —about $80 for four weeks. This is due to the fact that the institution is a co-operative affair, each person contributing a share of the expenses, and also to the fact that a great deal of the labor in planning the trip and its active conduct is volunteered. Many can testify that it is impossible to obtain a more delightful and beneficial vacation for less cost. Those who have not actually participated in one of these outings may have the idea that there is a disadvantage in traveling in a crowd. As a matter of fact, the actual experience is paradoxical and quite the contrary. The mountains are so large and spacious and the camping-places selected usually give such a freedom of choice of camp-sites, that it is only at the evening meal and the camp-fire which follows that the party is gathered as a unit. You may travel all day with your own choice of friends and rarely come in intimate contact with other members of the party. All each member is required to do is to take care of his own personal belongings, selecting his own camp-site for this purpose in the designated areas;



MOUNT DARWIN
Photograph by Ansel E. Adams

THE BLACK GIANT, MUIR PASS
Photograph by Ansel E. Adams

and after his sleeping-bag is rolled up with his other personal effects and the dunnage-bag deposited at the designated point where the packing takes place in the morning, there is nothing further for him to do except to appear at the next camp in time for dinner. Of course, there is a certain amount of volunteer service which is essential in a party of this size to take care of peak demands, but nothing is obligatory.

One of the most interesting features of these trips has been the opportunity to study human psychology, to note the actions and reactions of the various individuals of the party and see how they respond to unusual conditions, such as storms, the fording of rivers, climbing of difficult peaks, and, in the earlier days, deprivation due to non-arrival of dunnage-bags or commissary at the appointed time. The twenty-nine years are filled with experiences of this sort, some amusing, some serious.

Probably the outstanding human factor which has had much to do with the success of these expeditions is the fine spirit shown by the party as a whole—its enthusiasm and appreciation—which has tided over difficulties and troublesome moments. It is with a great debt of gratitude that I contemplate the loyal and unfailing assistance given by certain outstanding individuals in time of stress. There is one whom I cannot fail to mention, for many is the time we have tramped trails and crossed rivers together in the dead of night in our search for members of the party who had failed to appear at dinner or camp-fire. His unfailing sense of humor and his ability to stimulate and enthuse drooping spirits even to a state of hilarity have endeared Judge Clair S. Tappaan to the hearts of all those who have been fortunate enough to know him. My debt to him is simply incalculable. And now his son, Francis Tappaan, carries on, and has demonstrated by his ability to manage the 1930 outing that he has many of the rare characteristics of his illustrious sire.

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I have been asked to include in this article an account of the 1930 outing and to give my impressions of the first Sierra Club trip which I have attended as a mere "on-looker" rather than as active manager.

The entry into and departure from the east side of the Sierra gave us all an opportunity to admire and wonder at that gigantic, picturesque, and colorful uplift of "The Range of Light." Traveling by

Photograph by Ansel E. Adams

special train through the Mohave Desert, we reached the broad-gauge railroad terminus near Lone Pine before the heat of the day made desert travel unpleasant. Passing by stage through the towns of Independence and Bishop, we entered Rock Creek Cañon and camped the first night in the vicinity of the beautiful group of lakes at its head, directly under Mono Pass. On the following day, while this pass tested the hearts of all of us lowlanders, such wonderful vistas of the Sierra were spread out before us, that, long before we reached our camp in Mono Cañon opposite the Second Recess, the inspiration of our surroundings made us quickly forget the fatigue of the day.

Here we spent a delightful week, catching golden trout, and climbing Abbot, Gabb, Red-and-White, Red Slate, and numberless lesser peaks. Proceeding down the cañon a few miles brought us to the John Muir Trail. Traveling southward, up Bear Creek and over Selden Pass, we camped beside Sally Keyes Lake, where we had spent a delightful day just a year before.

The next camp was made on the South Fork of the San Joaquin, near the foot of Evolution Falls, and there, at the head of Evolution Valley, opposite The Hermit, we enjoyed another week of rest or climbing, according to choice. Golden and rainbow trout were plentiful and delighted the hearts of the many fishermen in the party. The more ambitious climbed Darwin, while others were content with The Hermit and other lesser peaks.

Then came the more strenuous trip over Muir Pass, where the site for the John Muir Memorial Rest Hut was selected, and where many willing workers piled up stones to be used in the construction later in the summer. The rugged scenery characteristic of the High Sierra seems to reach its climax at this spot, so fittingly named for John Muir.

A few of the more ambitious members of the party took the opportunity to knapsack up to the pass in advance and climb Mount Goddard, which is the outstanding peak of this portion of the Sierra, conspicuous even from the San Joaquin Valley as well as from most of the high peaks up and down the main crest. It is from the vicinity of Muir Pass that this mountain is most easily climbed, and the rest hut, now erected on the pass through the generosity of George Frederick Schwarz, will enable climbers to make this ascent in the future with less hardship and difficulty.

Camping in the first available timber that night, we experienced

our only storm of the trip. It lasted only a few moments, but pelted us with a plentiful supply of large hailstones by way of a farewell. On down Le Conte Cañon we traveled next day, through gardens of fragrant leopard-lilies growing in unbelievable profusion. There we met past-president Professor Joseph N. Le Conte, for whom the cañon was named some twenty years ago, who was camped in Grouse Valley with his wife and friends. After a brief chat we proceeded to the site on the Middle Fork of the Kings, opposite the junction of Palisade Creek, which we had occupied on two previous outings.

This camp-site brings back vivid memories. In 1920, I had brought the Sierra Club party into this region and was vainly looking for a spot large enough to accommodate 250 people, when, attracted by a flat area across the river, and finding a fallen log available, I crossed to inspect conditions on the other side. I found a camp-site large enough to solve the problem, but how to get the pack-train and main party across presented its difficulties, for the river was high and there was no ford available. At length a place was discovered where a ford might be constructed. I called upon all the members of the party, over one hundred in number, who had gathered at the river-bank, waiting for the perplexing situation to be solved, and we proceeded to pass out available rocks in such numbers that in a comparatively few moments we had built a broad, usable ford which enabled the pack-train to cross without difficulty, a ford which has remained serviceable to this day.

Here again, in this centrally located camp, the party enjoyed fishing for golden trout and taking side-trips up Palisade Creek and down the Middle Fork as far as Simpson Meadows. The North Palisade was climbed by several parties. One of them, led by Ernest Dawson, was the largest single party ever to make the ascent. A few climbed the Middle Palisade, and some youthful enthusiasts, including Glen Dawson, Jules Eichorn, and John Olmsted, swarmed over everything that looked formidable in the way of a mountain peak. They successfully ascended the highest Devils Crag, which had been climbed only once before, and then by a member of the Sierra Club, Charles Michael. The unselfish assistance which these youthful mountaineers rendered in getting so many inexperienced climbers to the top of the final pinnacle on the summit of The Hermit will also be remembered with gratitude.

At this camp we were entertained in delightful fashion by a pres-

entation of a clever "Greek" play, *Exhaustos,* written for the occasion by that versatile genius, Ansel Adams. It brought to mind many other colorful occasions when similar impromptu productions were produced at camp-fires on previous outings. Particularly does it recall the clever *Idyll of the Forest,* written by Harriet Monroe, the Chicago poetess, on the Kern River outing in 1908—a protest of the animal inhabitants of the out-of-doors sanctuary which we had rudely invaded, when even John Muir was called out into the light of the camp-fire to defend his invasion, only in his case the animals found him to be a real friend.

Loath to leave this specially fine base-camp, commanding the approach to so many inspiring side-trips, the party spent its last night at an elevation of 11,000 feet in Dusy Basin, under the rugged spires and palisades which guard Bishop Pass. The next day a short climb to the pass and a steep descent to the terminus of the road which leads up to South Lake in Bishop Cañon, brought the party to the waiting automobiles and civilization.

. . .

What is it that appeals to people and draws them year after year like an irresistible magnet into the High Sierra? Those who have joined repeatedly in the outings have doubtless done so in part, at least, because of fine comradeship under delightful surroundings. Stevenson has somewhere said, "There is no joy like that of being alone with nature and the woman you love." He might well have added that next to such happiness there is no joy like that of being out in the mountains with your chosen friends. But important as this is, friendship is not all. We may not consciously realize it, but it is quite certain that one powerful reason which induces us to go back to the high mountains year after year is their cleansing effect on body, mind, and soul. They take us far from the jarring, jangling noises and jazz of modern life—where we are forced to be constantly on the alert to avoid the real dangers which confront us at every crossing. Telephone-bells constantly ringing, automobiles honking, newspaper headlines screaming deeds of crime—these are not conducive to the best life. It is little wonder that our nerves get on edge. The very best antidote is the heavenly peace and quiet which pervades the forests and open spaces of the high mountains. Even the music of the little streams and mountain torrents, instead of wearying "like men

THE NORTH PALISADE
Photograph by Ansel E. Adams

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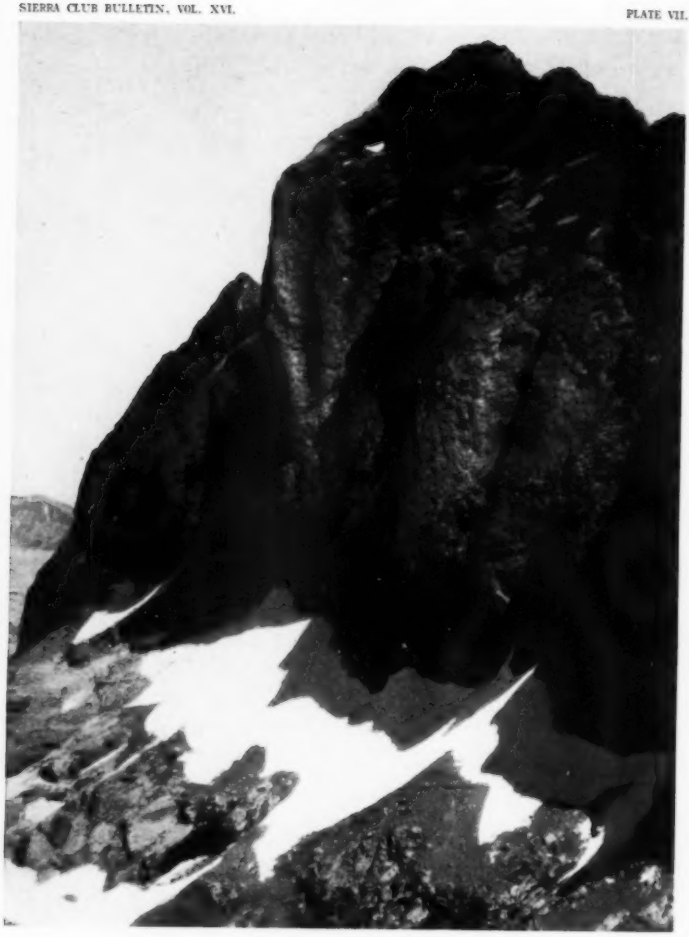


THE DEVILS CRAGS
Photograph by Ansel E. Adams

fiddlers, takes the mind out of doors, and, after all, what house is there like God's out of doors: Finally, Sir, it quiets a man down like saying his prayers."

Crystal clear air, crystal pure water, pine-needles for a bed after a day of healthful hiking along trails that unfold inspiring views to delight the eye, all combine to give us fundamental relief and cure for our many ills. Archibald Rutledge has voiced this in his recent book entitled *Peace in the Heart.* He describes the rough old mountaineer who was fond of climbing up to a great sunlit cliff and who explained it, saying: "I like this place because it's here that I come on God." He tells of a woman who had lost her husband and had won back peace and happiness through daily inspiration from association with a lovely river. He dwells on the cleansing effect of viewing the sunrise, and the fact that during the normal human life there is opportunity for seeing twenty-five thousand such sunrises. And yet how many of these priceless opportunities do we grasp?

Perhaps that is one reason why we are drawn back to the mountains year after year. For the early rising which becomes the custom during that all too short month enables us each morning to see the increasing light fill the eastern sky until it spills over the crest of the mighty range in a perfect flood as the sun itself finally appears from behind the shoulder of some sublime peak. We live and sleep alongside of the companionable streams. And during the nights from our high-mountain camps we can look up at the heavens crowded with myriads of stars that no mere lowlander can ever hope to see.

Somehow or other, like the old mountaineer, we find ourselves for the time being dwelling nearer to God, and it is little wonder that when we return we unconsciously bring back with us some of that rare peace and contentment which pervade the high places the world over.

EARLY GOVERNMENTAL ATTEMPTS AT FOREST CONSERVATION

By George W. Stewart

THE first Europeans to establish settlements along the Atlantic Coast of what is now the United States found there extensive forests which to them appeared to be inexhaustible; and they commenced at once the work of deforestation, which has been continued with little abatement by succeeding generations for more than three centuries. So great was the supply of timber for all purposes that it was selected and prepared for use by methods exceedingly wasteful, and areas were cleared for cultivation in ways even more destructive.

By the end of the second century the infant republic which had come into existence there found that wood required for use in building ships for its navy had become so scarce that providing the necessary vessels of war for the protection of its coasts and merchant marine had become extremely difficult; and the first act of Congress making provision for forest conservation in any manner, approved March 1, 1817, authorized the Secretary of the Navy to cause such vacant lands as produced live-oak and red-cedar timbers to be explored, and provided that lands selected therefor should be reserved from any further sale of public lands, and prohibited the removal of timbers therefrom to any point in the United States or to export the same to any foreign country.

Prior to this time the people of some of the colonies, and states, when they became such later, alarmed by the disappearance of the woods near the most populous settlements, had adopted measures for the protection of their remaining forests. But this article will deal only with the activities of the United States Government, which had no public lands within the boundaries of the original thirteen states.

An amendment to the act above mentioned, on May 15, 1820, withdrew the authority of the Secretary of the Navy to employ agents to explore and protect such timber, and directed that the same be done by surveyors designated by the President, who was authorized by a later amendment, on February 23, 1822, to use the navy to prevent the felling, destruction, or transportation of such timber growing in

Florida. Five years later, on March 3, 1827, the President was given further authority to take means to preserve the live-oak and other timber suitable for naval purposes, growing on lands of the United States, and to reserve the same from sale.

An act approved March 2, 1831, was the first specifically to prohibit timber depredations on the public domain, as well as reserved lands, and its provisions were sufficiently far-reaching and rigorous to satisfy the most ardent forest conservationist of the present day. In addition to protecting timber on reserved land it provided that—

> "if any person shall cut . . . or be employed in cutting live-oak or red cedar trees, or other timber on, or shall remove, . . . or be employed in removing any live-oak or red cedar trees or other timber, from any other lands of the United States, . . . with intent to export, dispose of, use, or employ the same in any manner whatsoever, other than for the use of the Navy of the United States,"

he shall be fined and imprisoned—as set forth in the act.

While this law evidently was intended primarily for the preservation of timber suitable for the building of war-vessels, it actually prohibited the cutting of any timber, from any lands of the United States, for any purpose whatever, other than use for the Navy. The law was enforced with much severity in the South Atlantic and Gulf public-land states, but westward-faring emigrants in and beyond the interior mountain ranges, where the needs of the Navy were not considered, subdued the country by continuing the wasteful methods of their forebears near the eastern coast.

Pursuant to the provisions of the initial forest conservation law of March 1, 1817, certain lands in Louisiana were reserved for naval purposes by Executive Order of February 29, 1820, and remained so reserved for more than a century and until a recent date. The act of February 16, 1923, authorized the Secretary of the Navy to certify to the Secretary of the Interior, for restoration to the public domain, lands in the State of Louisiana not needed for naval purposes. The certification of such lands to the Interior Department was made effective by a letter from the Navy Department dated March 30, 1923, and they were restored to the public domain by order of the Commissioner of the General Land Office of May 25, 1926.

The first record we have of any President of the United States calling attention officially to the preservation of the country's timber re-

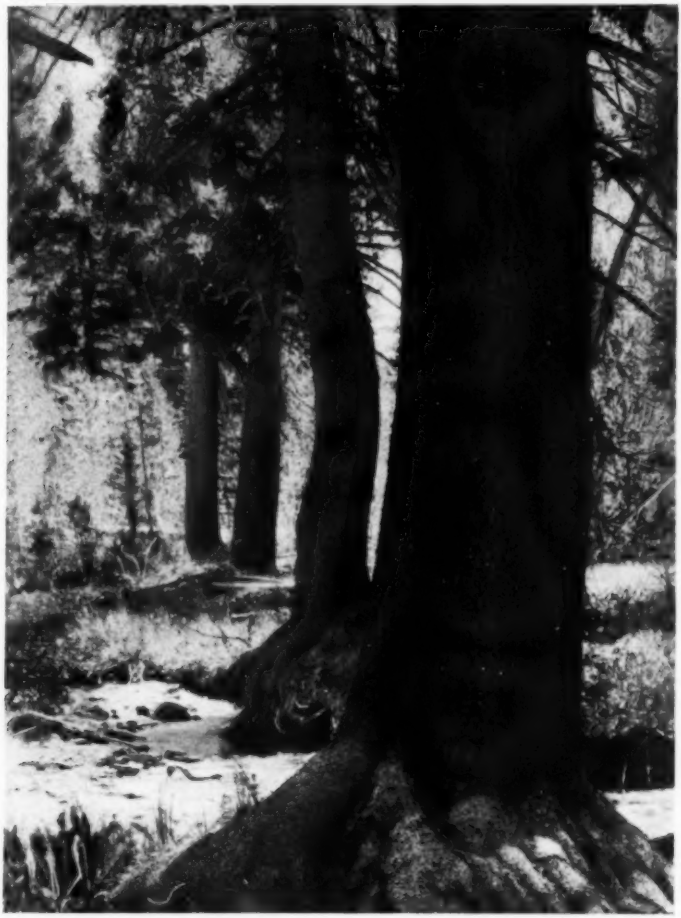
sources is contained in a message of President Polk, dated January 3, 1846, transmitting to the Senate a report of the Secretary of the Navy in relation to the "number of agents employed for the preservation of timber, their salaries, the authority of law under which they were paid, and the allowances of every description made within the last twenty years in the settlements of the accounts of said agents." The agents referred to are no doubt those named in the acts herein mentioned.

In 1855 the duties of the timber agents were transferred to the registers and receivers of United States land offices, without additional compensation to them. They were instructed to seize and sell timber cut by trespassers and to report offenders to the proper Federal district attorneys for prosecution, and many offenders have been fined and otherwise punished in the West under this act.

As population increased in the newly occupied territory, including the Pacific Coast area, where thousands were drawn by the discovery of gold, the rapid disappearance of American forests was often referred to in leading magazines and newspapers, in addresses by public men, in reports of officials having to do with public lands, and in the proceedings of scientific bodies; but the matter seems to have received no further notice from Congress or from the nation's chief executives until December 2, 1872, when President Grant, in his annual message to Congress, referred to the recommendation of the Commissioner of Agriculture, then a branch of the Interior Department, that measures be taken to protect and induce the planting of forests.

In 1873 it was stated before the American Association for the Advancement of Science, by Franklin B. Hough, that unless steps were taken to preserve the forests the supply of timber would disappear in a relatively short period of time. The following year, on February 19th, President Grant transmitted to Congress a draft of a joint resolution prepared by that association, a memorial upon the "cultivation of timber and the preservation of forests," and a communication from the Commissioner of the General Land Office on the same subject; and on December 7, 1875, in his annual message, he mentioned timber trespasses upon the public domain, and stated that there was then no adequate law for the disposal of timber.

The next to occupy the office, President Hayes, in his annual message to Congress, dated December 3, 1877, invited the "attention of Congress to the importance of the statements and suggestions made by the Secretary of the Interior concerning the depredations commit-



IN THE LODGEPOLE PINE REGION OF THE HIGH SIERRA
Photograph by Ansel E. Adams

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DETAIL OF A HIGH-SIERRA MEADOW—CYCLAMEN AND GRASSES
Photograph by Ansel E. Adams

ted on the timber lands of the United States and the necessity for preservation of the forests."

On the 13th of the same month Hayes transmitted to Congress the report of the Commissioner of Agriculture on forestry; in his annual messages of December 2, 1878, December 1, 1879, and December 6, 1880, he made urgent appeals, on the recommendation of the Secretary of the Interior, for the preservation of the forests; and on January 20, 1879, and February 5, 1880, he transmitted to the House of Representatives, upon request of that body, additional papers relating to forestry.

The acts granting to transcontinental railroad companies large tracts of land along the rights of way authorized the use of timber from public lands adjacent to the railroads for construction purposes. By a liberal construction the word "adjacent" was made to mean practically anywhere that timber was available, and it was cut, made into lumber, and used at any point and for any purpose deemed to be necessary by the railroad companies. In the mining regions the use of timber growing on lands valuable for their minerals was by common consent used for any purpose and in any quantity desired. In the heavily timbered regions of the Northwest much valuable forest land was at an early date acquired under the preemption law and in many cases was disposed of by the patentees to lumber companies.

The losses resulting from the most improvident methods of cutting and lumbering employed by woodmen and millmen, and by fires caused by carelessness, were appalling, and in 1877 the Commissioner of Agriculture requested authority of Congress for the appointment of a qualified person to gather forest statistics, and inserted in his budget a sum to be appropriated therefor.

The act of June 3, 1878, was passed by Congress for the specific purpose of making provision for the sale of timber land as such, and was the first legislation of the kind, the intent being, apparently, to make the acquisition of such lands more difficult than it had been; but the effect was otherwise than had been anticipated. Under this law, which has not been repealed, wealthy lumber corporations had little difficulty in acquiring title to large areas of the most valuable timber lands on the continent so long as they were open to entry. A vested right in 160 acres of land was acquired by the applicant usually in less than three months from the date of making application for same, after which time it could be, and in many cases was, sold to

Photograph by Ansel E. Adams

millmen or capitalists. Furthermore, this act specifically authorized residents of the several states and territories named therein to fell and remove for building, agricultural, mining, and other domestic purposes any timber or other trees growing or being on public lands that were subject only to mineral entry. Prior to the approval of this act timber had been freely cut on mineral lands without any definitely stated right to do so.

Requests from the Pacific Coast, official and otherwise, for the reservation of certain forest areas containing many of the "big trees," caused the Commissioner of the General Land Office in 1880 to suspend the same from entry, and in 1881 Senator Miller, of California, introduced a bill providing for the creation of a national park and reservation covering practically the entire belt of timber in the southern part of the Sierra Nevada. This early effort at national park creation and forest conservation in the extreme West was not successful, because of the extensive area included in the proposed park and consequent opposition thereto.

President Arthur, in his annual message of December 4, 1882, made a strong appeal to Congress for "additional legislation to secure the preservation of the valuable forests still remaining on the public domain," and in his annual messages of December 4, 1883, and December 1, 1884, he renewed his request for forest legislation.

Further representations from California concerning unlawful attempts to secure ownership of splendid forests induced Commissioner Sparks, of the General Land Office, on December 24, 1885, to suspend from disposition a tract of eighteen townships of timber land, or more than 400,000 acres, in the southern Sierra Nevada; and earlier the same year he suspended from entry a large number of applications under the act of June 3, 1878, for land in what is now Sequoia National Park, when apprised by the local United States Land Office officials of their fraudulent nature. In his annual report that year, he recommended "the immediate withdrawal from appropriation, sale or disposal of all public forests and lands chiefly valuable for timber."

On December 21st, of the same year, President Cleveland called the attention of Congress to depredations on Indian and other reserved lands, and on December 6th, of the following year, in his annual message, referred to the necessity of making provision for the "preservation of the national forests."

There was sent to the Secretary of the Interior from California in 1889 a petition praying for the creation of a forest reserve embracing all of the timbered lands in the Sierra Nevada from the Yosemite Valley (which had been made a state park in 1864) southward for a distance of one hundred and forty-four miles, covering approximately 8316 square miles, or 5,322,240 acres—slightly in excess of the area of the State of Massachusetts. There was then no governmental machinery existing for the formation of forest reservations, and no immediate action was taken. This is the first recorded request of the kind, and soon after its receipt in the office of the Secretary of the Interior the demand for the reservation of this great extent of territory described in the petition, signed by citizens of several counties of central California, attracted the attention of members of societies which had for several years manifested an interest in forest conservation.

On January 20, 1890, President Harrison transmitted to Congress a letter of T. C. Mendenhall, chairman of a committee of the American Association for the Advancement of Science, relating to the preservation of forests on the public domain, and earnestly recommended "that adequate legislation may be provided to the end that the rapid and needless destruction of our great forest areas may be prevented." On June 16th, of the same year, the President called the attention of the national legislative body to the destruction by fire of timber on the public lands.

Owing to the action of the Secretary of the Interior in issuing occasional orders revoking in part the suspension of 1885 protecting the Big Trees in California, thus permitting considerable areas bearing these forest giants to pass quickly into private ownership under the act of June 3, 1878, a movement was initiated in this state in 1890, for the creation of a national park embracing the largest known forest of sequoias, by means of which the permanent preservation of the trees would be assured. The movement was supported by the American Forestry Congress and the American Association for the Advancement of Science. The result of this effort was the establishment of the Sequoia National Park, on September 25, 1890.

Earlier the same year, on March 18th, General William Vandever, a member of Congress from California, who introduced the bill to create the Sequoia National Park, had also introduced a bill to establish Yosemite Park, which was referred to the Committee on Public

Lands and there remained unacted upon. After the passage of the Sequoia Park bill the House Committee mentioned revived the Yosemite Park matter, and on September 30, 1890, the day before Congress adjourned, the chairman of that committee asked unanimous consent to present a substitute bill prepared by the committee. The request was granted, and the act of October 1, 1890, enlarged the Sequoia National Park and created the Yosemite and General Grant national parks.

Although during nearly twenty years, from 1872 to 1891, Congress had been frequently requested by several presidents to make provision for preventing the ruthless destruction of the remaining forests, and although on a few occasions sufficient interest was aroused to cause requests to be made by that body for additional information relating to the subject, it was not until March 3, 1891, that definite and adequate action was taken. "An act to repeal timber-culture laws, and for other purposes," approved on that date, provided, by a "rider" attached thereto,—

> "That the President of the United States may from time to time set apart and reserve in any state or territory having public land bearing forests, in any part of the public lands wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations; and the President shall by public proclamation declare the establishment of such reservations and the limits thereof."

The rider is said to have been prepared by an official in the Department of the Interior in Washington.

Very promptly after the approval of the act, on March 30, 1891, President Harrison created by proclamation the first forest reserve. He has a total of seventeen to his credit. President Cleveland, who succeeded him, was also active in the good work, and established sixteen such reserves. Thirteen of these, now known as national forests, were created by him on February 22, 1897, a week before his term expired.

The large forest reserve of five million acres petitioned for by residents of California in 1889 was not amongst the first created. Practically the same territory was mentioned in a recommendation sent to the Secretary of the Interior by the California Academy of Sciences, in August, 1890, for the creation of a national park. The area in question was, by order of the Commissioner of the Gen-

TREE PATTERN—SIERRA JUNIPER
Photograph by Ansel E. Adams

SIERRA JUNIPER TRUNK
Photograph by Ansel E. Adams

eral Land Office, dated November 5, 1891, "Withdrawn from disposal . . . pending investigation of Tulare Forest Reserve"; but the Interior Department, in its usual deliberate manner, a year later detailed a special agent of the General Land Office (who knew little or nothing about forests) to examine the lands described in the California petition and report on the advisability of including them in a forest reserve. He had with him the petition, or a copy of the petition, and stated that it was because of the receipt thereof in Washington that the rider providing for the creation of forest reserves was made a part of the act of March 3, 1891. His report on the area investigated was favorable, and on February 14, 1893, it became the Sierra Forest Reserve by proclamation of President Harrison. While in places the western boundary of this reserve has been extended or withdrawn from time to time, the area included within the national forests in that territory today is practically the same as that described in the petition sent to the Secretary of the Interior from California more than forty years ago, except as to the area later included in Sequoia and part of Yosemite national parks and that eliminated from the Mount Whitney Military Reservation.

While the machinery for setting aside timber reservations was provided by Congress in 1891, that body showed no haste in the matter of protecting the forests after the lands on which they grew were reserved from disposition, perhaps owing to the many contrary demands made by conflicting interests.

President Cleveland, in his annual messages of December 4, 1893, December 3, 1894, and December 7, 1896, endeavored to secure appropriate legislation. In 1893 he said:

> "I especially recommend to the attention of the Congress the statements contained in the Secretary's report concerning forestry. The time has come when efficient measures should be taken for the preservation of our forests from indiscriminate and remediless destruction."

In 1894:

> "I fully endorse the recommendation of the Secretary that adequate protection be provided for our forest reserves and that a comprehensive forest system be inaugurated."

An excerpt from his message of 1897 indicated that something had been accomplished. It reads:

> "The commission appointed from the membership of the

> National Academy of Sciences, provided for by act of Congress, to formulate plans for a national forestry system, will, it is hoped, soon be prepared to present the result of thorough and intelligent examination of this important subject."

While gratifying progress was thus being made in the right direction, a chapter in the history of forest legislation which counterbalanced to a considerable extent the satisfying advance referred to, must be credited to this same year. The act of June 4, 1897, provided for the exchange of private lands within the boundaries of forest reserves for an equal area of non-mineral land of the public domain. The act appeared harmless on its face, and to many it gave promise of being beneficial legislation, but proved to be the death-warrant of many splendid forests. In a short time timber speculators learned how the law could be used, and, during a period when forest reservations were being created by the wholesale, those who were initiated assisted in promoting the establishment of extensive reserves covering forest and brush lands of little value, had much cut-over timber land made into forest reserves, and also had the areas of existing reserves extended to embrace privately owned foothill lands and other lands of little value. These tracts in private ownership, many of which sold for two to three dollars per acre, and some for as little as fifty cents an acre, were acquired by speculators and reconveyed to the United States, and in lieu thereof they received in exchange title to yet unreserved virgin forest land then valued at $200 to $400 per acre.

These people imposed on the President and his advisers, and flooded Washington with requests for the creation of extensive forest reservations, including the poorer lands, while every effort was made to keep valuable and unentered timbered areas in the public domain, where they could be selected as lieu lands, and this was done notwithstanding an amendment on June 4, 1897, to the enabling act of March 3, 1891, which provided that—

> "No public forest reservation shall be established, except to improve and protect the forest within the reservation, or for the purpose of securing favorable conditions of water flows, and to furnish a continuous supply of timber for the use and necessities of citizens of the United States."

The great distance of these lands from Washington made it difficult or practically impossible for officials there to know or readily ascer-

tain the true character and condition of all tracts recommended for reservation.

Concerning these exchanges of practically worthless lands for valuable forested areas, an official of the United States Land Department wrote to a California member of the Public Lands Committee of the House of Representatives early in 1904 that—

> "The act of June 4, 1897, providing among other things for the exchange of lands within forest reserves for public lands elsewhere, was written, or outlined, by a party here [in California]. He made a snug little fortune out of it the first year, and fully expected it to be repealed by the succeeding Congress. . . . This is a law used almost entirely by wealthy men or syndicates. . . . So much unforested and worthless land has been included in the many forest reservations, often by petition of parties who desired to use the same as bases for selections, and without the knowledge of officials in Washington, who cannot know the character of all the lands in the reserves, that it seems that some means should be provided for eliminating deforested and naturally barren areas from the reserves before any part thereof may be used as bases for selection under the act of June 4, 1897."

And to a United States Senator from California he wrote about the same time:

> "Worthless land has been exchanged for heavily timbered tracts, so that a law supposed to be in the interest of forest preservation, has actually been the means of the Government losing title to thousands of acres of its best forest lands. I have known cases where after the merchantable timber had been cut from the land, the same was exchanged for equal areas in this state [California], Oregon, and Washington. The possibility of exchange and the profit therefrom have been the cause of worthless lands being added to so many reserves."

The repeal of this lieu-land law, on March 3, 1905, although tardy, nevertheless saved to the Government much forest land of great value, and effective forest conservation thereafter became possible.

An extended and careful examination later of these several hastily made forest reserves resulted in a material reduction in the area of a number of them by the elimination therefrom of portions having no value as forest reserve land, and much of which had been included therein through the misrepresentations of promoters, in order that they might be used as bases for lieu selections.

The carrying out of the provisions of the early laws calculated to protect certain timber trees or timber lands was entrusted to various officials or divisions of different governmental departments, as noted in the first part of this article, and it was not until 1881 that forestry work was consolidated and organized in a separate office and placed under the Commissioner of Agriculture, an officer of the Interior Department. After the creation of forest reserves under the act of March 3, 1891, those areas were placed in charge of a division of the General Land Office, and were administered by officials with no knowledge of forestry and unfamiliar with western forests. Prior to this time a Division of Forestry had been organized in the Department of Agriculture. This later became a bureau, and when, by the act of February 1, 1905, the administration of forest reserves was transferred from the Interior Department to the Department of Agriculture, the Bureau of Forestry became The Forest Service.

The first representatives of the service sent into the western forests arrived with much knowledge of books and no practical experience and were not more successful in those days than the division chiefs and clerks of the General Land Office had been, but they had a foundation to build on and soon learned. The service improved as their knowledge of unfamiliar conditions increased, and, having made forestry a life calling, an efficient corps of foresters and assistants was gradually organized.

The rapid expansion and development of forestry under President Roosevelt and Forester Pinchot, and their successors, are familiar to those who are interested. But that is another story—and a long one.

While at first general forestry work was expanding in the Department of Agriculture and the forest reserves remained under a division of the General Land Office for administrative purposes, the services of experts from the forestry service in the Agricultural Department were frequently requested and made use of. And at the present time, while matters relating to *timber* on lands in the national forests and the leasing of such lands for certain purposes are now administered by The Forest Service, under the Agricultural Department, all laws and regulations relating to the disposition of the *lands* within these forests are enforced by officials of the General Land Office in the Interior Department.

At present practically all valuable timber lands which were a part of the public domain are included in the national forests.

THE HIGH SIERRA AND THE REDWOOD HIGHWAY

By Wallace W. Atwood, President, National Parks Association

WHY are these two wonderlands associated in my memory? Perhaps it is because I visited each one for the first time last summer; perhaps it is because of their contrasted beauty and magnificence; perhaps because they stand first in their respective groups of natural wonders in our country.

Nowhere else in North America are there so many bold, rugged, rocky groups of sharp mountain peaks as in the High Sierra. Nowhere are there more beautiful mountain lakes or more picturesque stream-courses. Nowhere in North America, except in the High Sierra, is there a cañon eight thousand feet deep.

The high mountain area, with its steep trails, its bold escarpments, its sharp pinnacle-like summits, commands the respect of the mountaineer, and tests his strength and endurance. However, his efforts are sure to be rewarded. He cannot but be deeply impressed by the ever-changing panoramas of granite peaks that greet his eyes at the outlook stations where he pauses on his ascent.

Riding in a saddle through these high mountains during the cool, clear days of the summer, furnishes a delightful series of experiences to the lover of the out-of-doors. To rise higher and higher on the John Muir Trail to points 12,000 and even 13,600 feet above the sea; to look out over a landscape in which scores of mountain lakes may be seen; to cross the great amphitheaters where ancient glaciers formed, where they scoured the bed-rock surfaces, smoothed and polished the rocks, and upon retreat left their tools strewn over the floors of the basins; to look down an escarpment 11,000 feet to the floor of the Great Basin to the east of the range and meditate on the differential movements that have taken place in the crustal portion of the earth during the remaking of the Sierras; to descend thousands of feet into cañons carved by the persistent work of running water and later modified by gigantic tongues of ice—all these force one to stretch his imagination in an attempt to appreciate the great forces of nature which have been operative in the history of the range. They force one to stretch his imagination in an effort to appreciate the time

that has elapsed in preparation of the present landscape. The region is a wilderness. Much of it is without good grasslands and without forests. From many points an outlook over a score of square miles may be had where not a tree can be seen. The high mountain landscape equals in extent many areas like those of the European Alps put together. It cannot be matched unless we turn to the Himalayas, the Caucasus, or the Andes. It is a land where few wild animals live. It is a region primarily valuable as a great natural wonderland to look upon and to think about.

. . .

Northward from the Golden Gate to the Oregon state line there is a highway, not far from the Pacific Ocean, more beautiful than any other drive in the world. Along that route one winds through grove after grove of the mighty redwood trees. Those trees rise to heights of three hundred feet or more. They form, with their branches, huge Gothic arches which reach ever higher and higher toward the heavens. They so interfere with the direct rays of the sun that in the depths of the forest the light is subdued and like that of twilight. On the floor at many places in the midst of these wonderful groves, there are soft carpets of dark-brown needles or of the deep-green leaves of the growing oxalis.

The trees are tall, stately, and majestic. The atmosphere in the forest is quiet. Occasionally a bird may be heard, but the impressiveness of the quiet is most profound. It is a place where one cannot but feel an inspiration and a reverence for the beautiful, the old, and the patient. These trees have withstood the storms of centuries. They are 1500 to 2000 years old. They carry the scars of many a forest fire. Through some mysterious power they have the ability to withstand the attacks of insects that destroy many other forms of forest life.

California is fortunate in these great assets; but she is most gracious in planning to share her wonderlands with all the people of the world. It is her hope and her ambition that these trees that grow nowhere else in the world may never be killed by man. She invites all the world to come and see them. Where are there two such wonderlands so near together and with so much of meaning and inspiration?

THE DEL NORTE COAST STATE PARK

By Emerson Knight

LESS than a score of years ago, the northern coast of California, especially the region beyond Trinidad, remained, excepting to local ranchers and timbermen, virtually an unknown country. Lumber-schooners and small freight-steamers plied their trade in Crescent City, which had been founded in 1853, its semi-protected harbor offering the only practical and easy access to the mines of northern California and southern Oregon. Such few roads as existed were narrow and winding, with precipitous grades, and almost impassable in the rainy season. In following the old rambling road, the passage of the Klamath River near its mouth was made at Requa by a small crude raft-ferry—a ferry so frail that it seemed constantly in danger of being swept out to sea. This was replaced, a few years ago, by the great concrete Klamath River bridge, some miles up-stream, thus forming the final link in the superb Redwood Highway which ribbons up the length of northern California, always along or comparatively near the coast. The completion of this Klamath bridge made finally accessible the region in Del Norte County which includes our Del Norte Coast State Park.

This park, comprising an area of over 2300 acres, is noteworthy for its topography, ranging from sea-level to 1100 feet upward, its rich variety in flora and fauna, and its wealth of impressive scenic beauty. When traveling northward, it is entered shortly after crossing Wilson Creek and continues, five miles in length, to a boundary beyond Knapp's Point. The extreme width is about a mile and a half. The curving course of the Redwood Highway swings along for six miles and attains a height of over 900 feet in the park, while the length of the ocean frontage is also about six miles. The park is unique on account of its redwood forest of stately gigantic trees on steep slopes, being closely related to the dramatic broken shore line in constant state of evolution, below. The Graves Grove of redwoods lying in the very heart of this park is an area of most extraordinary beauty. It formed the nucleus of a major park project which in a brief span of years has expanded rapidly by subsequent gifts.

The history of the Del Norte Coast State Park, with respect to the preservation of redwood forest and adjacent lands worthy to complete a well-rounded park, was initiated when George Frederick Schwarz, of New York, purchased 157 acres of redwoods with sea-frontage and deeded them to the State of California on August 20, 1924, with a dedication in honor of Henry Solon Graves, former Chief Forester of the United States Forest Service. In making this gift and in considering its administration, Mr. Schwarz, himself formerly a member of the Forest Service, proved a donor of vision, discrimination, and taste, besides revealing a sympathetic understanding of the forest. Mr. Schwartz followed his first gift by the purchase of two adjoining parcels, comprising 130 acres of forested land, also fronting the ocean, which were deeded to the state in April, 1926.

The park area was presently augmented by a generous gift from George O. Knapp, of Santa Barbara, who, with keen insight and with the public welfare in mind, bought certain units of land, both north and south of the Graves Grove, in order to make sure that no trees would be cut and thus destroy the natural beauty of the approaches. On April 29, 1929, these 331 acres were deeded to the state. A government tract of 80 acres near the Graves Grove was also transferred in the same year. Two tracts, one of 40 acres and one of 1568 acres, were purchased by the State of California and the Save-the-Redwoods League and added to the park early in 1930. Thus, from the initial gift of 157 acres by Mr. Schwarz, the park has expanded to a total area of 2306 acres, all within a period of six years.

In September, 1925, the writer rendered a report on the Graves Grove jointly to Mr. Schwarz and to the Save-the-Redwoods League, and in June, 1927, he prepared a report on the Del Norte Coast Redwood Park project, which included recommendations for desirable limits or boundaries together with a consideration of the lands needful for protecting the environs of and approaches to the park. The total area suggested for inclusion in this project was 3182 acres; so that the plan as then conceived is already approaching fulfillment. However, it is quite possible that this total may be increased in time by adding the ocean-frontage between the present southern boundary of the park and Wilson Creek to the south, as well as other strips lying north of the existing northern limit of the park—as far perhaps

SOUTH FROM MOUTH OF DAMNATION CREEK—DEL NORTE COAST REDWOOD PARK
Photograph by Russell Angel
(Courtesy of Save-the-Redwoods League)

SOUTH FROM MOUTH OF DAMNATION CREEK—DEL NORTE COAST REDWOOD PARK
Photograph by Russell Angel
(Courtesy of Save-the-Redwoods League)

COAST VISTA, HENRY SOLON GRAVES GROVE—DEL NORTE COAST REDWOOD PARK
Photograph by Russell Angel
(Courtesy of Save-the-Redwoods League)

as the mouth of Cushion Creek, or at the beginning of the beach crescent which sweeps into Crescent City. It would then be over four thousand acres in extent.

The Redwood Highway, a major artery of California, penetrates and traverses the Del Norte Coast Park from end to end. As one travels north, the grandeur of the park region begins to be apprehended even before descending to Wilson Creek. The highway crosses the creek not more than a few hundred yards above its mouth, a few feet above sea-level. A long steady climb is begun along sweeping curves over the open slopes above the cliffs, which boldly increase in height and ruggedness. These open lands are punctuated by pleasant clumps of alders and small conifers at rhythmic intervals, greatly enhancing the picturesque quality of the landscape. The heavy pounding by the sea upon the cliffs has separated mighty boulder masses which still cling to the mainland or are so disintegrated by the churning waters that they lie scattered over a great area, jutting through the surf in multitudinous profusion. As the ascent is continued, the horizon widens until on fine clear days the blue is scanned for many miles southward and westward.

In the vicinity of the great Last Chance slide of shale there is a transition from the open country to the redwood forest, and the grade slackens to assume a more undulating tone through the dense company of trees. This flowing trend of the highway with its carnival of curves insures a wealth of shifting forest pictures, with "steep plunging views down the steep forest slope below the road." Impressive with energy the trunks thrust skyward while the leafy canopy enfolds so subtly as to lend expectancy and wonder to each penetrating glance through shadows. The undergrowth is of divine confusion. Great ferns and trailing vines mingle with dense glossy-leaved shrubbery—all enfolding fallen giants, down for long centuries, mossy and fern-laden. Rhododendrons lift their branches with airy grace and clusters of rosy pink, exemplifying the grace of Grecian maidens, revealing their gleaming forms against the deep-furrowed bark of glowing trunks. At certain hours, when the fog hangs veiled like a spirit among the trees, the pervading silence seems intensified. Then they appear to breathe gratitude for the boon of moisture. But when the mist clears suddenly, as if by magic, and every lovely detail is crisply outlined, pungent, delightful odors arise from the abundant living plants and the deep-mulched ground.

COAST VISTA, HENRY SOLON GRAVES GROVE—DEL NORTE COAST REDWOOD PARK
Photograph by Russell Angel
(Courtesy of Save-the-Redwoods League)

After such a stimulating ramble of some miles through the forest, the highway suddenly emerges at Knapp's Point, overhanging the sea seven hundred feet and unfolding a spectacular panorama of the ocean, cliffs, and the great curving beach sweeping northward to Crescent City. The dramatic effect is immense, the composition revealing vividly the precipitous lines of Herculean bluffs, appalling slides of shale, the débris of rocks and driftwood along the shore, and the tortuous course of the highway, poised, as it descends, between sheer walls above and below. Presently the topography grows less abrupt, while sandy beaches, smooth and brown, are seen sheltered by the enclosing rocky shoulders of the hills. A forest of moderate density continues above, while alders and pepperwoods abound in the creeks. At last the highway swings its last curve and drops in relaxation to the level dairylands across which it runs in a straight line into Crescent City, most northerly of towns on California's coast. Each hour, each day, and every season has its special intimation of beauty —its unspeakable joy to the sensitive eye, its limitless gifts for the responsive mind and heart. Each journey over this highway through so signal a park area adds new zest to life, enriches the memory, and rekindles the desire to experience this great drama of Nature once more.

Automobile travel through the Del Norte Coast Park reaches its peak in volume in the month of July; the number of cars passing south through this area in 1929 during this period averaged 1850 in one day; in 1930, for the same period, the daily average was 1550 cars. These figures assume importance when one remembers that a very considerable percentage of such travel is for the sole purpose of recreational pleasure.

The old county road through the length of the park, now rarely used and almost forgotten, undulates along the crest of the ridge, attaining an elevation of a thousand feet, somewhat higher than that of the Redwood Highway, which sweeps around the seaward slopes. This charming old winding road commands vistas into some of the finest of the redwoods on both slopes, and offers delightful surprises due to its quick-shifting grades and turns. It is a happy reminder of earlier days, having a corduroy bed through its boggy stretches. If, as seems likely, it becomes necessary to relocate the Redwood Highway, it is hoped that this old route may be adopted. There would be certain distinct advantages in this course. In the first place, it leads

through trees of exceptional girth and height, on the highest and best-drained ground. Moreover, it would eliminate the high cost of maintenance now encountered as the result of devastating slides which occur along the present route at almost any season. Lastly, and of equal importance, it would serve to keep intact and inviolate the superb wilderness area of forest lying between the present Redwood Highway and the ocean. The meaning of this can be appreciated when it is realized that such a combination of unbroken, magnificent sloping redwood forest and sea-front, both commanded simultaneously from the highway above, occurs nowhere else in California, or, indeed, on the globe. This condition is explained because the State Highway Commission has already surveyed a new course around the slopes below the present Redwood Highway, which would split the wilderness area in two, resulting in a highway more expensive to maintain, and also marring forever some of the grandest scenery in the state. Finally, if the Redwood Highway should be routed along the ridge over the general course of the old county road, the existing highway can be converted into a slower, rambling road, and the Graves Grove would then be discovered to have additional charm in its forest sanctuary.

Another solution of the traffic problem, affording greater protection to scenic beauty, might be found in building one-way highways. The old county road, for instance, could be converted into a one-way Redwood Highway for northbound travel, while the present highway could be used exclusively for southbound cars. This would avoid the necessity of unduly widening the existing Redwood Highway or straightening its alignment. Frederick Law Olmsted discusses this subject in a recent letter. Speaking of the detrimental effects of building too wide a highway through forest scenery of park character, he says: "But allowing for the destruction of natural forest conditions which would inevitably be caused at the sides of the road by cuts and fills (even if retaining walls are used much more freely than the highway engineers are inclined to use them), the tendency would be to produce a relatively wide-open swath of highway along which one would seem to be traveling *between* and *outside of* two separated forest parks, one below the highway and one above it, instead of being *in* the forest."

From the northbound highway, so developed from the old county road, a trail could be designed and built from a convenient point on

its route—downward by an easy gradient through the forest to the monument in the Graves Grove, on the southbound present Redwood Highway. It would then be possible for travelers going north, but not planning a southbound journey through the park, to visit the monument as the result of a short and comfortable walk. The feeling in the writer's mind is that all of these monuments are virtually shrines, and, as such, need to be insured some degree of quiet retirement that will allow the beholder to feel himself in an open-air sanctuary of trees.

An old Indian trail takes off from the Redwood Highway at about two hundred yards south of the Graves monument and zigzags rapidly down a precipitous ridge in a very direct course to the bed of Damnation Creek and out through a rocky gorge to the sea. Only some three-quarters of a mile in length, it was used by the Indians for gathering berries and cascara, mussels, clams, and other sea-foods. It is much too steep a trail for ease and practical use on the part of those in quest of pure enjoyment of scenery while climbing, but is nevertheless valuable as a fire trail, and is also kept open because it offers variety in trail pictures if used only on the descent.

On account of the extraordinary beauty of the Graves Grove, it was felt desirable by Mr. Schwarz, the donor, to design and build a new trail with easy grades, that would include in its course several of the most marked pictorial types of beauty within the grove. It was the writer's privilege to locate and supervise the construction of this trail. First, an intensive study of the abrupt topography and the flora was made in order to determine upon the general route. Clambering down over immense prostrate logs and forest débris, pushing through amphitheaters of sword-ferns more than man-high, I would break through dense thickets of salal and black huckleberry, slide down shale into deep ravines, and crawl under almost impenetrable thorny tangles of salmon- and thimble-berry. Then, when the general plan was determined, I would drive stakes and reconnoiter ahead, while stout men with brush-hooks would hew out the course—a slow, stiff task. One cannot conceive of a better appetite or a sounder sleep than those days entailed, as a result of laboring in an environment so inspiring and so invigorating.

Three distinct types or zones of scenery are encountered on this new trail, which, in its course from an elevation of about 900 feet at the highway to the ocean, is approximately two and a quarter

REDWOODS AND RHODODENDRONS
HENRY SOLON GRAVES GROVE—DEL NORTE COAST REDWOOD PARK
Photograph by Russell Angel
(Courtesy of Save-the-Redwoods League)

REDWOODS AND RHODODENDRONS
HENRY SOLON GRAVES GROVE—DEL NORTE COAST REDWOOD PARK
Photograph by Russell Angel
(Courtesy of Save-the-Redwoods League)

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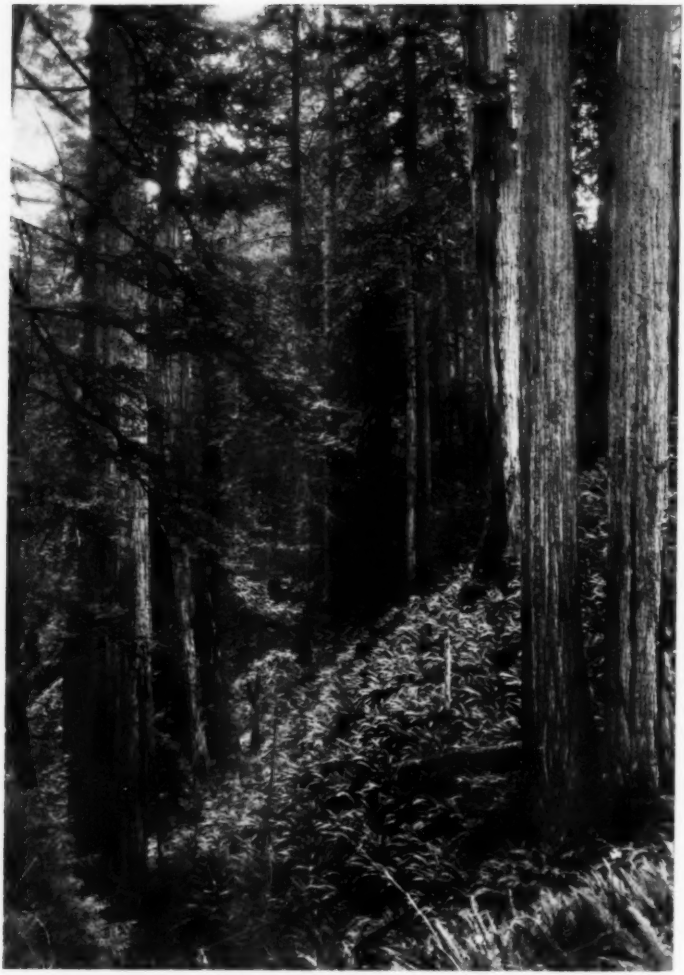

DETAIL OF REDWOOD FOREST
GRANT GROVE, DEL NORTE COAST REDWOOD PARK
Photograph by Russell Angel
(Courtesy of Save-the-Redwoods League)

miles in length. Leaving the highway at about a quarter of a mile north of the monument, the route is begun on a friendly sloping ridge, but soon drops on grades ranging from five to ten per cent into the fastness of the giant redwoods with their limited admixture of fir and hemlock and undergrowth of rhododendrons, dense shrubbery, and tremendous ferns. This forest zone is sufficiently open in its tree-spacing, notwithstanding the frequency and magnitude of the patriarchs, to give the impression of unlimited freedom and depth. In the lower reaches of this belt one gains the first glimpses of the ocean, afar off, tree-framed.

Gradually the redwoods grow less dense, and there is a change to the lower (second) zone, much more open in character, but graced by fine clumps of alders and native maples of great spread, moss-bearded. Here, too, are tideland spruce, with fantastical, wind-carved crowns; while below are cascara, elderberry, and a close undergrowth of thorny shrubbery. It is while descending through this second belt that one is stirred by the first clear views of the immense sea—hurling against huge isolated boulders and crashing against sheer cliffs with resulting clouds of mist. While the eyes are drawn to the glistening surface, the ears are enchanted by the unresting surge song of the waves and the boom of the surf. The lower stretches of this second zone are along the banks of Damnation Creek, where the trail finally seeks passage between rock walls to the beach. Here the third zone—that of the sea—is unfolded, limitless, stupendous in its glory. Gazing along the coast southward, as far as the eye can penetrate dim mists of distance, ridge on ridge clothed with forest descend in rhythmic order, to become one with the ocean.

The spiritual essence of the innermost redwood forest is one of an alert twilight stillness and cathedral grandeur. The noble fraternity of trees, as they mature silently through the centuries, discloses to us how to live loftily and to die gloriously. Each patriarch rears high his crown, seeking the light and the sun, calmly awaiting the day when he shall fall to his final couch of rest amid other fallen companions, there to shelter shrubs and friendly ferns. Who could hold communion with these wonderful trees without becoming aware of that ineffable quality which emanates from them—which instills in him gladness with humility, elevation of mind and renewal of forces, both of the body and the spirit? Rapt in exalted mood, the

old trees seem to be conferring in a language more ecstatic than sound, more deeply and subtly communicable than we can comprehend. Stalwart youth springs up among them, clean and sheer and straight of limb, so perfect in proportion and symmetry that we behold them with delight. So close-clustered are young and old that their foliage forms a dense interwoven canopy, often rendering it impossible to see from the base their plumy crests. They respond to all vibrant changes of the day, to all seasons and all weathers—with perfect consummation. When the fog hangs poised between them like a benediction they are infused with Druidic mystery. They seem to offer prophetic revelation when the mists are pierced through with slanting sun-rays. They bend and sway with exhilarating freedom in a violent storm; they revel in the rain; but perhaps their state most fraught with majesty and the ethereal is when the sun burns golden in the west, turning their trunks to a vivid red-bronze, while between them is seen the dark blue or gray-green of the ocean! Here, indeed, one bares and lifts his head as spontaneously as when within the most glorious edifice ever dedicated to worship by man.

POEMS

By Neill C. Wilson

COMRADE OF THE ROAD

A mountain is an elder brother. Girthy and hale is this elder brother;
Rugged and fond of a fray is this brother, fond of grips and a tussle.
He measures me with fearsome frowning, sends guffaws down the rocky glensides,
Feints me, blocks me, cuffs and jars me, knocks me backward into bogs and briers;
Menaces with hearty brandish, jeers me anew to the onset,
When, today I overthrew him.
I the upstart, I the inchling, I without strength of one of his fingers,
I knocked handily asprawl, coming back only with good spirit,
I upended my elder brother. I bore him under in triumph.
Thoughtful is my elder brother. Civil is my elder brother.
Affable is my elder brother, his strong arm circling my shoulders.

Yesterday a forest fire roared up one of his valleys.
My brother's cloak resolved into flame. Unperturbed he remarked it.
At evening lashed a hurricane rain. He fronted it good-naturedly.
During the night fell winter's first snow. He loomed at morn magnificent.
Today a long red earthrent slipped from his side. Calm he surveyed the attrition.
Yet have I seen him ponder elate at spring's first scarlet snowplant.
Yet have I watched him bend with delight to the first blue aster in the high passes.

Now I know why my mountain-brother scorns the slides of erosion,
Stands unmoved through scorch and sleet, yet joys at spring's frail garlands.
Waste is ancient. Wear is ancient. Streams must drop to the sea.
What is incredible, what is sublime is the grand upsweep of waters from the sea.

Wilt is normal, droop is normal to petals old in the sun.
What is deathlessly divine is the swelling of one new seed.
So it is he lets me close with him, covertly allows me clutch of him,
Grins when I cross-buttock him, laughs as I knee him under.
I with the pine, the winging bird, the lifting cloud, the greening blade,
I am one more visible form of the forces of striving and being.
Long ago out of grim endeavor my brother himself found stature.
Now we twain have struck stout comradeship. I shall march where he captains.

LONG MARCH

THE mountain is now the younger brother. I have grown lately the elder.
Up, come up to the sun he calls. I hear but I do not answer.
He shouts adown at gusting spring that his slopes are blowing with lilies.
I muse of rambles in morns remote, of edelweiss on old ranges.
He carols zestful of summer noon, of streambanks white with azalea.
I nod of alpine pinafores once brimming with bloom, long emptied.
He trumpets halesome that autumn glory flames along his hillsides.
I shrug of goldenrod burned dim, of color and fire snow-vanquished.
Hark he booms, it's winter again, and ice-harps tuned at the crests.
I mull of warrior halls long thronged, of horns long drained, guests scattered.
Yet is he vehement, my brother. Yet is he incitant,
Crying me to essay with him, to jaunt with him at the reaches.

I shall scale once more those cleats, those rungs to sun-washed pinnacles.
Over snows I shall trudge again to greet the far-strewn universe.
Though I stumble, my brother's arm gently shall surround me.
We shall fare together though our journey be into centuries,
Joying in each fine gale, in each brave dawn, in each fair starfield.
He is youth, I am age. He is stone, I am breath. Yet shall he conduct me.
Stalwart and boon shall he march beside me, my staff and my exhorter.

SKI FIELD ON THE SUMMIT OF MOUNT WATKINS
Yosemite National Park
Photograph by Ansel E. Adams

SKI-FIELD ON THE SUMMIT OF MOUNT WATKINS
Yosemite National Park
Photograph by Ansel E. Adams

LEMBERT DOME IN MIDWINTER
Yosemite National Park
Photograph by Ansel E. Adams

SKIING IN CALIFORNIA

By Otto Barkan

IT was in the winter of 1919-20 that a small group of enthusiasts put about to find suitable skiing country in the Sierra Nevada of California. Up to that time skiing had been for the most part of the eight- or ten-foot pinewood variety, with primitive toe-straps—merely a means of locomotion for the lumbermen and railroaders of the Sierra. A few initiates may have penetrated the Tahoe region,* a few boys may have performed some jumps at Truckee's snow carnival for the delectation of trainloads of metropolitan excursionists, or a very occasional knight-errant of the ski may have appeared for a snowy day; but skiing—the great and glorious sport of ski mountaineering—was practically non-existent in California.

So at least we were led to believe when two of us alighted in the snowsheds from the train at the old Summit Station one chilly morning at 5 o'clock with our Norwegian ski and sticks. A huge fellow occupied the little station-room, spat on the remaining bit of floor, and remarked, "Going to ski?"—"Yes."—"Them sticks ain't no good—you want a big pole"; for the Sierrans were wont to ski forth with a single pole, acting as brake, hobbyhorse, or balance, as the occasion demanded, much after the manner of the old Zdarsky one-stick method of the Austrians. Little did he guess that with these small ski and dainty bamboo canes it was possible to turn, swerve, or stop, at a speed of forty miles an hour and over, avoiding obstacles, shooting between and around trees, in a glorious flying descent of perfect control.

Out of deference to my companion, who was a novice, we spent the first two days in a secluded spot of the woods. On the third day, however, the writer, fresh from the Swiss Alps, climbed to the cliffs behind the railroader's settlement and "let her go," oblivious of everything but the sinuous flight down to a whirling stop. He was greeted by loud hurrahs and shouts from the various houses and shacks half-buried in the snow; for it was Sunday and the railroaders were at home. As they afterward confessed, they had watched the

* See articles in Sierra Club Bulletin, 1915, vol. ix, no. 4, pp. 271-277.

"fool city guys" climbing to the cliff with some amusement, and had hoped they would break their —— necks. Sturdy skiers though they were over long distances and in any weather, they had never seen such turns or even imagined the possibility of their execution. That afternoon they shyly dropped in on our host, Bob Agnew, on various pretexts, incidentally casting a glance at our skis and bindings. Later we heard a sound as of hammering from the neighboring cabins and before long saw them sally forth on quite modernized ski. Our Telemark and Christiania turns were imitated by our good mountain friends, some of whom in the course of the following years became expert skiers. With them we explored the surrounding country from Castle Peak to Mount Lincoln, and to our delight one day dropped into a skier's paradise, which we named the "Sugar Bowl"—the spot Charlie Chaplin at a later date chose for the first scene of his "Gold Rush."

In 1921 the writer's better-half, on her first arrival in California from Sweden, was greeted at Summit by fourteen feet of snow and a boxful of orange-blossoms. On that occasion, while skiing from Mount Lincoln to Mount Anderson and Tinker Knob, my wife and I saw in the light of the setting sun the opalescent glint of Lake Tahoe. To reach Tahoe across the mountains became our dream, the realization of which had to be postponed to a future occasion. That evening we had to ski against the swiftly approaching night. We enjoyed a glorious run for a mile or two down the top of a ridge, and managed to complete the last half-mile of the descent in darkness by following the sound of a stream far below. A kindly freight-train picked us up in the snowshed and returned us to Summit.

For three winters Dr. Duncan Morison, of Edinburgh and Switzerland, was our happy companion. In these days our group called itself the California Ski Club. In 1923 Dr. Hans Lauper, the well-known alpinist, joined us for a season. He and Dr. Eloesser, the novice of 1919, with some others, climbed Mount Shasta on ski; but because of the wind-blown nature of the snow there they were glad to return to Summit later in the winter. After trying various localities —Cisco, Truckee, Tahoe—we always returned to Summit because of its pleasing location at an altitude of seven thousand feet, and its better snow conditions.

In 1923 the historic Summit Hotel burnt to the ground, and with it burnt a bit of old California. But its spirit of generous hospitality

was continued by our good friends who put us up the following years. Now there is a good hotel at Soda Springs Station, about a mile and a half west of Summit.

In 1926 the broad-gauge made it possible for the first time to go directly to Tahoe. Yet we regretted the passing of that fine sleigh drive up the Truckee River which we had enjoyed before the advent of the winter-train service. On this occasion we had a rarely beautiful tour, skiing west from the Tavern up Ward Creek to Ward Peak, from the top of which we dropped down north to Bear Valley and so to the Truckee River. The cliffs were aflame in the setting sun as we shot down in the shadow of the peak into the blue depths beneath us. The snow on this cold northern slope was so dry and powdery, and, except for a slight hiss, our descent so noiseless, that we became aware of the swiftness of the descent only through seeing the blazing crags to our right rapidly rise and thrust upward into the sky. After what seemed an endless series of downward shoots, punctuated with sharp turns and stops, panting, we reached the shadowed floor of the valley and its gentler slopes. The flaming cliffs were now high above us. With wings on our feet we coasted in gentle curves between the trees and into the starlit night.

As this tributary of the Truckee offered such a fine descent, my wife and I decided to carry out our cherished dream of crossing the mountains from Summit to Tahoe at the next opportunity. In 1927, one morning before daybreak, "the little woman," as the linemen called her, Scott Smith, and the writer started from Summit for Lincoln Saddle, which we reached as the sun was rising. We had decided upon the route to be followed from previous tours in the Summit and Tahoe regions and from the Geological Survey maps* of the intervening portion. Due to the small scale of the maps, we were left largely to our own resources to find the route which would entail the least loss of altitude and of time—for it was imperative to reach the floor of Squaw Valley before nightfall. The trip took fifteen hours, including one half-hour of reconnoitering and one half-hour's rest. The distance covered was between thirty and thirty-five miles.

The first two hours from Lincoln Saddle took us underneath and past the wind-swept cornices of Mount Lincoln and Mount Anderson. At this early hour of the morning there appeared to be no danger from

* Truckee quadrangle.

slides. Toward noon we lost altitude by being forced to descend into a cirque on the north side of Anderson. This was bad enough in itself; but when it began to thaw we wondered whether we should ever reach our goal. Hopeless though it seemed, we began the very hot and tedious climb up to Tinker Knob throuh abominably sticky snow that stuck a foot deep to our ski. The advisability of giving up the trip before it got too late was discussed. However, as we gained altitude and the shadows grew longer, the snow became less sticky, and at 4 o'clock we finally looked around Tinker Knob at our next objective, the watershed between the North Fork of the American River and Squaw Creek. We traversed the south slope, where the granular spring snow permitted us to swing along at a good speed, while the Granite Chief range, radiant in the afternoon sun, kept pace to the right. Just to our left, and seemingly within our grasp, cadmium-colored cliffs pierced a deep-blue sky. We had hoped that the descent from the watershed to Squaw Valley would prove to be a skier's reward for our previous labors. But, alas, after the first few excellent runs across wooded slopes we found the head of Squaw Valley to be broken up by a maze of boulders and cliffs. Time pressed; so good form was thrown to the winds. We slithered and skidded between the rocks any which way until our bones ached—albeit an interesting and fascinating descent—and reached the valley floor as night fell. Tired and hungry, we plowed our way for two hours along the Truckee River to Tahoe, where at last we thawed out our frozen clothes in the Pullman car.

In January, 1929, we spent a week in the Glen Alpine country above Fallen Leaf Lake. Our summer stamping-ground, now covered with a mantle of snow, had become converted into an immaculate paradise. Gone were the automobiles, the dusty trails, and the oppressive heat. Primitive nature ruled again. We skied to Lakes Angora, Lucille, Heather, and Desolation, and spent a rather windy fifteen minutes upon the iced top of Mount Tallac. The descent along the long southwestern slope of Tallac, where the wind-blown trees were coated with ice and there are no speed laws, was a grand experience.

Such experiences await the skier when sometime in the future the Sierra will be made more accessible for winter sports. In the last few years interest in winter sports in California has grown apace. Where a few individuals formerly carried on there are now hundreds. Ski

SKIING AT TUOLUMNE MEADOWS
Yosemite National Park
Photograph by Ansel E. Adams

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SKI TRACK NEAR TUOLUMNE PASS
Yosemite National Park
Photograph by Ansel E. Adams

clubs and associations have been organized. At Norden, near Summit, the Sierra Ski Club, composed largely of members of the University of California faculty, holds forth in a handsome lodge. Auburn and other towns have large club memberships, and in Yosemite the highlands are being opened up.

In Europe the appreciation of winter in the mountains was not born until the latter part of the nineteenth century. It took some years for people to overcome their traditional attitude toward winter —let alone the mountains in winter—namely, that of a necessary evil, to be put up with as best one could in the shelter of towns and well-heated homes and relieved only occasionally by the pleasures of ice-skating. One need but cast a glance at any part of the Alps today to realize how totally the picture has changed and how the joys of winter have taken Europe by storm. One cannot but believe that the same will occur in California. It might be argued that the Californian has no need for this—indeed, Easterners come to the Pacific Coast to enjoy our balmy, snowless winter season. Yet, as variety is the spice of life, so also is it health-bringing, and there can be no question that for us lowland Californians a truly seasonal change such as is offered by the snows and altitudes of the Sierra is a priceless thing.

Our winter sport conditions vary from those of the best regions in Europe inasmuch as we labor under certain climatic and latitudinal handicaps. Due to our southern latitude the dry powdery snow, ideal for skiing, is soon turned into a crust by the sun on southern exposures. On the northern slopes the snow may be ideal for weeks on end, but even this may be sadly spoiled by a period of mild weather. Our snow usually comes with wind, and in large quantities, from the west, which is not so favorable as the frequent light precipitations and more or less constant frosts of the high Alps, Norway, or Sweden. On the other hand, we have certain definite advantages. Our days are longer, our sun is stronger, and our periods of fair weather are much greater. A glance at a snow map shows that the annual snowfall is greater in certain parts of the Sierra than in any other part of the United States, with the exception, I believe, of one or two areas of the Northwest. The terrain is excellent, and when the snow conditions are good one can hardly wish for a finer ski-touring country.*

* Reference is made to Dr. Tresidder's article, "An Introduction to Skiing," and to Mr. Bartholomew's "A Winter in the High Sierra," both in SIERRA CLUB BULLETIN, 1930, vol. XV, no. 1.

SKI-EXPERIENCE

By Ansel E. Adams

FRITSCH rests his skis upright on a brittle arm of albicaulis. "We should wax now; it is a long run down to the lake." While we wait for our skis to warm in the sun we search the gleaming skyline for old landmarks and the peaks and cañons of new adventure....

Just two days before we had thrilled on the extensive snowy summit of Mount Watkins overlooking Yosemite Valley, where we made mile-long runs with the gigantic forms of Clouds Rest and Half Dome rising before us across the abyss of Tenaya Cañon. Beyond these somber masses of sculptured granite, profoundly accentuated by heavy robes of snow, shimmered in white majesty the Merced Range — Mount Clark (the Gothic mountain), and the colorful shoulders of Red Peak. We skimmed the very brink of the great valley; four thousand feet below lay the white threads of roads, and a tiny rectangle of gray, dotted with almost invisible moving specks, which we knew as the large ice-rink in the shadow of Glacier Point. Beyond, steel-toned foothill ranges notched the long vistas of the San Joaquin plain. And against the western sky leaned the coastal mountains, unbelievably blue and far away.

This very morning, at the hour of silence and frosty stars, we were edging along the base of Tenaya Peak, our skis rasping and crunching on the brittle snow. Climbing around the western shoulder of the mountain, we came into full sunlight and a thrilling view of the main-crest peaks, white and cold in the early light. Here the snow was powdery and swift under our skis, but we refrained from downhill running and soon emerged on the summit—the hub of a tremendous wheel of mountain grandeur. A hundred miles of glittering peaks encircled our pinnacle of granite, and far below stretched the shadeless, dazzling plain of frozen Tenaya Lake.

The familiar and intimate aspects of the Sierra that one has learned to love during the long summer days are not obscured by winter snows. Rather the grand contours and profiles of the range are clarified and embellished under the white splendor; the mountains are possessed of a new majesty and peace. There is no sound

of streams in the valleys; in place of the far-off sigh of waters is heard the thunder-roar of avalanches, and the wind makes only faint and brittle whisper through the snowy forests. To us, four motes on an Earth-gesture of high stone, it appeared that great mountain spirits had assumed white robes of devotion and were standing in silence before the intense sun. . . .

Fritsch whips his skis on the snow and leaps down the long billowy slope; a cloud of powdery snow gleams in his wake. We follow; long spacious curves and direct plunges into the depths that take our breath with sheer speed and joy. Down and down through the crisp singing air, riding the white snow as birds ride on the wind, conscious of only free unhampered motion. Soon we are at the borders of icy Tenaya Lake—two thousand feet of altitude have vanished in a few moments of thrilling delight. . . .

Today we are moving on to Tuolumne Meadows. All the bright morning we were conscious of a deep stirring in the air, the world quickening to some obscure activity. Now, as we come upon the lower stretch of the meadows, we are aware of a remote, ominous sound, insistent as the murmur of a sea-shell pressed to the ear. Soon is this pulsing world-sound swelling to a deep and throbbing roar—the organ-tone of storm-wind sweeping the skies and mountains with immeasurable power. A huge dragon of cloud crawls out of the southwest, and with it comes a horde of gray demons, darkening the sun and veiling the summits. We arrive at our cabin under a leaden sky as the first snow is drifting down on the wind.

After several days, we emerge on a new and glorious environment, for the storm has piled a great splendor on the world, and peak and forest gleam with frosty beauty. The morning is clear and cold, the last stars burn with diamond light as we cross the meadows on our long run to Merced Cañon. The new day lifts over the silent range, Mount Conness takes sudden fire, blood-red and golden light flames on the long Sierra crest, and the crisp snow at our skis sparkles in the first sun. At Tuolumne Pass we find true alpine conditions—supremely fine snow, swift and dry; grand open areas above the last timber, undulating for miles under cobalt skies; peaks and crags flaunting long banners of wind-driven snow. A world of surpassing beauty, so perfect and intense that we cannot imagine the return of summer and the fading of the crystalline splendor encompassing our gaze.

The white magnificence yields to the clean motion of our skis, and we glide over the glistening dome of the world and launch our long descent to the Merced River. Down we rush, cutting the sharp air with meteor motion; always the cool rushing wind, and the shrill hiss of skis upon snow. Above us towers the noble Merced Range, wave upon wave of lofty stone glittering in the low winter sun. A huge ledge lifts suddenly on the curved face of the hill; we turn in a bright mist of ski-spun snow and slant anew along the cañon wall. The mountains soar higher into the flaming sky, and the blue depths rise to enfold us as we skim down through the dusk to the shadowed valley with the swiftness known only to the ski.

CROSSING TUOLUMNE PASS ON SKIS
Yosemite National Park
Photograph by Ansel E. Adams

CROSSING TUOLUMNE PASS ON SKIS
Yosemite National Park
Photograph by Ansel E. Adams

SKIING IN THE YOSEMITE HIGH SIERRA
Mount Florence at the right
Photograph by Ansel E. Adams

AN ASCENT OF THE MIDDLE TETON

By Frithiof M. Fryxell, Grand Teton National Park

IT was late August, 1929, in the Grand Teton Park, and the summer drouth had finally given way to light rains. Fall was at hand, and tourist travel had dropped off until the camp-ground at Jenny Lake was virtually deserted. After the somewhat feverish activities of the first summer of the park, calm had settled over the Jackson Hole country. The moose were coming down out of the cañons, stampeding the horses at night—to the infinite disgust of the horse wranglers who in the mornings repeatedly found that their animals had been scattered. Flowers there were in abundance still, lending tones of purple and yellow to the meadows and mountainsides.

For weeks there had been scarcely a cloud along the Teton skyline, and little of snow—a panoply of bare peaks, sharply defined and bright as steel points in the transparent atmosphere. Day after day we had beheld to the west the incomparable panorama of the Teton Range, motionless, silent, changeless.

How different now! The clouds had come, at once as inseparable a feature of the mountains as the peaks themselves, softening the sharp outlines, bringing life and unceasing change to the scene. One could gaze on indefinitely, forgetful of all else, at the endless succession of compositions in mist and mountain—gray banks of clouds into which the peaks thrust their lofty summits, long silvery banners that wreathed the granite brows of the mountains or trailed across their feet, heavy fogs which settled into and filled the cañons. There were days when clouds blotted out the range entirely, and, for all that was apparent of them, the Tetons might as well have been a thousand miles away. Back in the range the thunder rolled, giving voice to the scene.

To leave at this season, the most intriguing of all, was my lot each year, and reluctantly I packed up on August 27th preparatory to a journey home. Not strange that to the pleadings of my friend, Phil Smith—that I stay over *one* more day for a final trip into the Tetons —I listened, and yielded. We would make the 28th a memorable day, one which would yield a store of memories on which we could subsist till spring would bring us back again. We decided to climb

Mount Florence at the right
Photograph by Ansel E. Adams

the Middle Teton and place a government register on its summit, the third highest in the range (altitude, 12,769 feet).

With adventure in the offing, sleep is light, and the following morning we were awake at 3:45. The sky was nearly clear, and the bright stars gave no hint of dawn. Gilman, third member of our park crew at Jenny Lake, sacrificed an hour of sleep to drive us to the Lucas Ranch. Here we left him at 4:30 and set off for the peaks, walking briskly to quicken the circulation, for the morning was crisp and cold. Ahead, the dark forms of the mountains blotted out the stars. Our shoes were soon soaked by the dew on the meadows. The wooded moraines which lay beyond the meadows were awkward to cross in the dark. Twice some large beast, doubtless a moose, crashed off through the underbrush.

The first gray light of dawn found us entering the open area at the base of the Grand Teton. This clearing marks the course of a snow-slide which, in the winter of 1927, came down off the flanks of the Grand Teton and swept away the trees. In the imperfect light we saw a bull moose grazing among the broken tree stumps; he lifted his head to gaze fixedly at us as we passed within a hundred yards. At the foot of the range we turned left and entered Bradley Cañon, and as the light improved we were able to keep high up on the north wall, making rapid progress. In the cañon below we caught sight of another moose, a cow.

The familiar features of Jackson Hole took form behind us. Clouds were rapidly building up along the horizon, and the sunrise sky was painted in flaming colors. The sun itself appeared, but soon lost itself in clouds. The sky paled, and a cool, cloudy day had come, giving promise of rains or, at the altitudes for which we were bound, snow.

No pause till six-thirty, when we reached our old base camp in the bottom of the cañon—just beyond the highest tree. Here is a huge overhanging boulder which affords effective shelter, and beneath which one may safely stow provisions while making excursions into the "hinterland" of the range. Near the boulder are mats of timber-line moss and flowers on which one can stretch out luxuriously. Fire-wood may be had from timber-line, and the cañon stream which emerges from beneath snow-fields only a few hundreds of feet away flows swiftly past the door. Here we made ourselves at home, built a fire, and, digging out some canned foods from beneath the boulder, deposited a year before, partook of our long-postponed breakfast.

Near its head Bradley Cañon forks into two short prongs. Within the fork and central in position stands the Middle Teton, and outside of the prongs to the north and south respectively are the Grand and South Tetons. These are *the* Three Tetons (*les Trois Tetons* of history), the great landmarks so conspicuous and distinctive seen from the west and southwest.

Gendarmes to the north and south of our camp shut out all peaks except the Middle Teton, which was framed in at the head of the cañon. Less than a mile away it loomed up with startling closeness.

Even within the noble group of peaks of which it is a member the Middle Teton is a mountain of outstanding individuality and impressive proportions—a superb rock tower rising with sheer sides three thousand feet above the cañon floor to a rounded summit. Regardless of the direction from which one views it, the Middle Teton is the most symmetrical of the Teton peaks, and better than any other mountain in the range it justifies the name *Teton*—the French word for "breast"—bestowed by the early trappers.

A feature of the mountain which catches every eye is a vertical dike of igneous rock which, outcropping along the middle of its east face, forms a conspicuous black band running up and down the mountain.* Similar though less striking dikes cut the Grand Teton and Mount Moran, and are visible for great distances. These curious formations are the object of innumerable queries on the part of park visitors and not uncommonly are mistaken for open cracks in the mountain. At this late season snow had melted away from the dike in the Middle Teton, and it was strikingly distinct against the gray gneiss of the peak—like a livid black welt.

To travel light we left jackets and other non-essentials at base camp, and crossed the boulder fields to the foot of the peak. On the way we secured some fine garnets for the park geological collections, and we discovered a boulder which was studded with large and perfect crystals, one measuring two and one-half inches in diameter. So was the name "Garnet Cañon" suggested to us.

Reaching the dike we clambered up to examine it. Near the bottom, where, overlapped by talus slopes, the intrusion is nearly forty feet wide; higher up it is much narrower. It has weathered out into a shallow trough, and at times snow lingers in this depression so that a white band appears on the mountain instead of the usual black one. On

* See illustration, Plate xxii.

weathered surfaces the dike rock is chocolate brown; where freshly broken, black. Subsequent analysis of the rock proved it to be an augite diorite.

We continued, skirting left around the peak, intending to begin the ascent from the saddle between the Middle and South Tetons, but when we rounded the Middle Teton and saw that over a mile of boulder fields and slide rock still lay ahead of us, we decided forthwith to attack the peak at once, a decision which changed the complexion of the day's events. In mountaineering, as in the more commonplace walks of life, obedience to impulse usually brings a touch of unforeseen adventure.

We began the ascent at the nearest point on the mountain, a long couloir extending from the southeast base of the peak to the crest of the east ridge.* From the beginning, this route afforded excellent and varied rock climbing. Higher up on the mountain the couloir flattened and widened, and we abandoned its trough, preferring the pitches at the right, where there was less danger from falling boulders. We accepted whatever means of ascent were afforded, traversing back and forth on ledges and climbing by means of the steep crevices. The peak offered problems of sufficient variety and difficulty to call for constant alertness and some ingenuity, without at any time utterly blocking progress. The day continued gray and cool, and damp clouds frequently brushed the mountain.

We were none too sure that our route would lead to the highest point, for having examined the summit from the Grand Teton we knew it to be greatly fissured; hence when we came to a good ledge leading around the south side of the peak we followed it out on an inspection tour. It pinched out at a chasm which seemed to divide the mountain into east and west summits, and it was impossible to determine whether the east summit, on which we found ourselves, or the one across the gulf was the higher. Since it was quite impossible for us to continue the traverse and cross to the west summit, we were spared a decision between the two. We therefore retraced our course and continued working up and around the east ridge. Unexpectedly we found the black dike underfoot. It reached up toward the summit like a blazed path, and we followed it—chiefly for the sake of novelty. But the dike, instead of transecting the summit, cut a little to the north of it, and eventually led us around to the north slope of the peak.

* The route is indicated on Plate xxii.

MIDDLE TETON, FROM THE EAST
(Showing outcrop of Diorite Dike)

SOUTHEAST FACE OF MIDDLE TETON, FROM SUMMIT OF NEZ PERCÉ
(Taken July 5, 1930, showing route of August 28, 1929)
Photographs by F. M. Fryxell

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NORTHEAST SIDE OF MIDDLE TETON, FROM GRAND TETON
Photograph by Kenneth A. Henderson

Here the dike route came to an abrupt end. The division in the mountain which had stopped our traverse around the south side extended through the mountain, as we had supposed, and now threatened to block our progress around the north side. The dike—here only fifteen to twenty feet wide—was cut off sharply, and across the chasm we could see its continuation in the west peak. Directly below us lay the Middle Teton Glacier.

It was perfectly evident that the main summit of the Middle Teton lay across the chasm, and was hundreds of feet higher than the inferior summit on which we stood. The best part of the climb still lay ahead of us. We left the dike and completed the ascent of the slender rock spire we were on, built a cairn on its summit, and then, perched on the rim, studied the mountain face to the west. The lower portion (all that was visible) looked vicious, but there were niches and joint fissures worth investigating. By means of an icy ledge, much encumbered with loose rock, we traversed around the north face of "Dike Needle" and dropped down into the col. Steep couloirs descended from the col both to the north and south. That to the north was filled with snow, which was continuous down to the glacier below. We chose to cross the south couloir, descended about one hundred feet along the edge of the ice and snow which it contained, and cut steps across to the main peak. The niches and joints in the steeply pitching rock face measured up to our expectations and enabled us to continue the ascent with high hopes of reaching the summit.

I was engrossed in the climb, when Smith called excitedly, "Look, quick!" The clouds to the north had parted, disclosing the summit of the Grand Teton. It was our first view of the peak from the south, and so different did it appear from what we had anticipated that we gazed at it in wonder, as at a stranger. Clouds soon obscured the peak again, but not before a photograph had been secured which happily preserves that fleeting and extraordinary view of the Grand Teton.*

A few hundred feet of fairly difficult climbing, and we stood on top—only to find that our troubles were not yet over. The Middle Teton had reserved its best surprise till last. We were on top of the mountain, to be sure; but the top was divided by a gash as deep and steep-sided as a knife-cut, and the portion of the summit across this gash (to our northwest) was a few feet higher than that on which we found ourselves. Getting around to the other side of the gash (for we

* Plate xxiv.

could not get across it) proved by far the best problem of the day. We solved it by descending the north precipice of the mountain, perhaps three hundred feet, until we came to a horizontal joint fissure into which we could get our toes, then edging along sidewise to the bottom of a vertical crevice which led up toward the gash. The crevice was icy and blocked with chockstones, but at last we wriggled through it and into the gash, and at ten minutes past one we scrambled up our third and final summit.

We found no cairn, but our predecessors had heaped the loose summit boulders into a sort of rude protective wall. A tin can wedged in the rocks contained the record of the first ascent, made from the south, by A. R. Ellingwood, of Lake Forest, Illinois, on August 29, 1923,* and that of the second ascent, apparently made from the saddle between the Middle and South Tetons (the southwest), by Irven, Morris, and Oswald Christensen, of Rexburg, Idaho, on July 16, 1927. We transferred the records of these parties into the government register, added our own, and attached the tube to a boulder in the wall. The original records were brought down for preservation at park headquarters.

From the north end of the short summit ridge we looked across the cañon to the only mountain in sight higher than our own, the Grand Teton, now dimly visible through mist and torn clouds blown across the divide. From this viewpoint the west spur of the Grand Teton, on which is built the mysterious rock enclosure, is particularly conspicuous. The dike in the Middle Teton again drew our attention, a deep groove through the mountain just north of the extreme summit marking its course.

Gathering clouds warned us to be gone, and before long a snow flurry was added to the experiences of the day. The broken west ridge appeared to offer a ready route to the saddle between the Middle and South Tetons; but we turned left at right angles to it and entered the head of a couloir that descended the south side of the mountain,† possibly the one used by Ellingwood. Descent by this route, while lacking the uncertainties of the morning, proved a slow and painstaking process. Near the summit the couloir was rendered uncomfortable by overhanging splintered ledges, and by loose boulders which were insecurely lodged in crevices and steep chimneys. In spite of utmost

* *Outdoor Life*, September, 1924, vol. lix, no. 3.

† Plate xxii.

caution on our part some of these were dislodged and shot down the couloir with terrific impetus, leaving a sulphurous odor in the wake of each impact, nor did they come to rest until they reached the talus slopes at the base of the mountain. Nowhere had we found this hazard, ever-present on the Teton peaks, greater than here, and at the first opportunity we left the bottom of the couloir in favor of the slabs to the right, which, if tedious and requiring occasional use of the rope, were at least safe from flying missiles.

Our most vivid memory from this descent—next to trying to keep from starting off loose boulders and dodging them when they did get away—is of the rock slides and avalanches which occurred on the peaks to the south—Nez Percé, Cloudveil, and the South Teton. The day must have been peculiarly favorable for the loosening of rock masses, for all day long the roll of distant slides had been audible, and from this side of the mountain they were particularly evident. The rattle of isolated falling rocks could be heard almost continually, and at not infrequent intervals the roar of avalanches re-echoed among the peaks. Occasionally there were rocket-like reports produced when boulders, shot over precipices, struck the mountain hundreds of feet below and were shattered. Sometimes the tattoo of a falling boulder grew into a roar as a general rock slide was precipitated. Yet seldom could we actually *see* these falling rocks and avalanches to the south of us, so wide was the intervening gulf. As the voice of an avalanche was borne to us from across the cañon we would pause to scrutinize the mountain from which the sound seemed to come, but generally we failed to discover its exact source. The roar would rise with marked crescendo to a climax and then, after lasting for perhaps a number of minutes, gradually die away. The silence which followed its last echo was profoundly impressive.

To such an accompaniment we completed the descent, reaching the base of the Middle Teton cliffs not far west of our starting-point. We retracted our course to the base camp, stopping again at the foot of the dike to secure a block of the diorite. As usual, I loaded up my long-suffering pal with the rock specimens we had collected in the morning and had placed on the tops of conspicuous boulders, where we would be sure to find them. The descent of the cañon resolved itself into a race against darkness. In this we lost, for dark overtook us at the mouth of the cañon, where, in the morning, it had itself been vanquished by dawn. Again we crossed the moraines and meadows

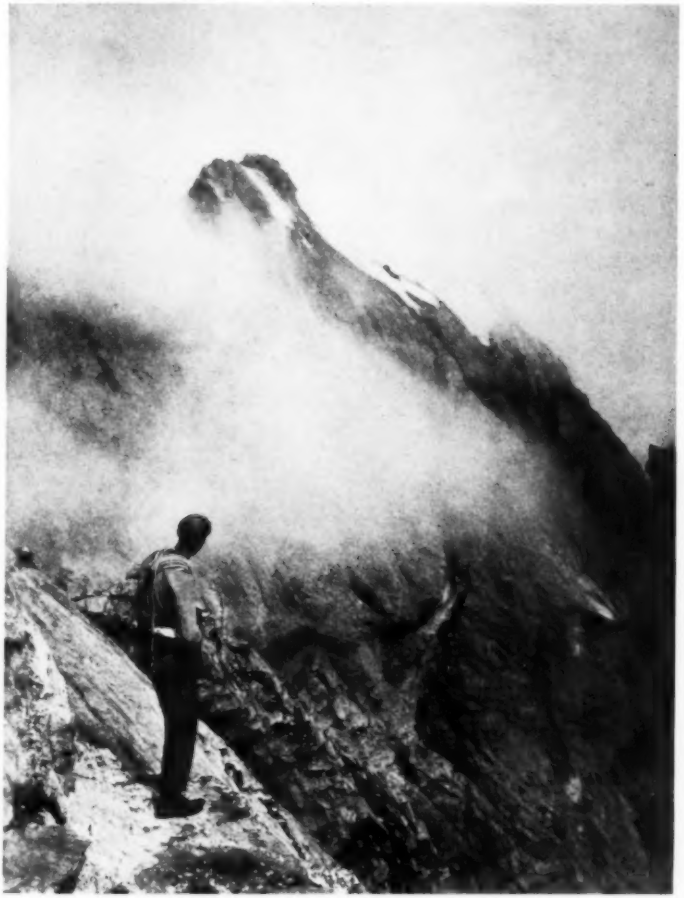
by dark—no starlight now—till the cheerful light of the Lucas Ranch appeared between the lodge-poles. Here Gilman met us. At Jenny Lake we rested and ate and lived the climb over again. The next day was one of farewells, as I left for Cody and home.

* * *

MOUNTAIN REVERIE

By Elizabeth V. Currier

The moon is crescent swinging low;
The wind is gentle, sighing so;
The peaks stand black against the sky;
The lakes, reflecting, peaceful lie.
My mountains! They belong to me;
They stand for all I wish to be:
Courageous, strong, protecting all
Of God's creations great and small.
They stand in great serenity.
They're mine; they all belong to me.



GRAND TETON, FROM MIDDLE TETON
Photograph (copyright) by F. M. Fryxell

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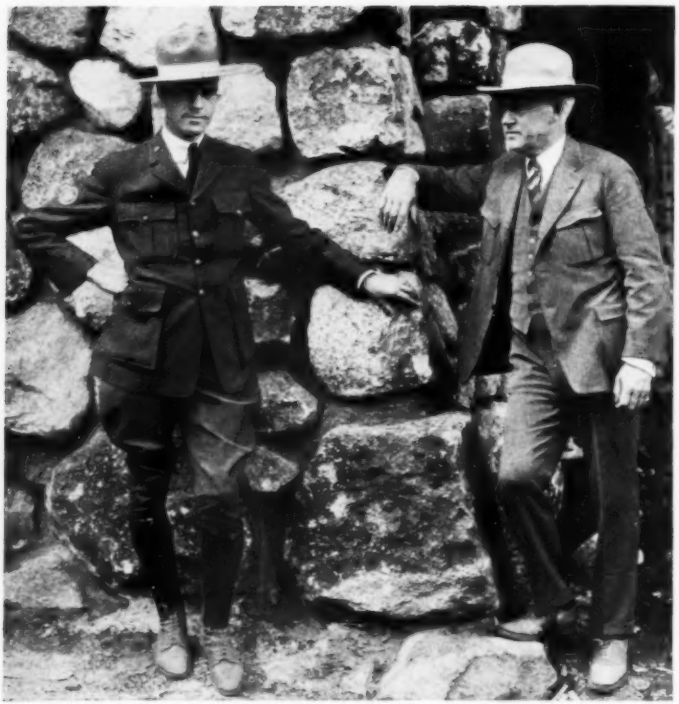

W. B. Lewis Stephen T. Mather

THE SUPERINTENDENT OF YOSEMITE NATIONAL PARK
AND THE DIRECTOR OF THE NATIONAL PARK SERVICE
At the Dedication of the Administration Building, Yosemite Valley, 1924
Photograph by James V. Lloyd
(Courtesy U. S. National Park Service)

STEPHEN T. MATHER
1867-1930

By Francis P. Farquhar

WHEN Stephen T. Mather came to Washington in 1915 to become Assistant to the Secretary of the Interior, it was his intention to remain for only a year. Up to that time he had taken no part in public life, for, although always keenly interested in public affairs of a constructive sort, his energies had been largely devoted to the building up of a thriving business in borax. The immediate occasion for his coming to Washington was the vacancy caused by the appointment to the Federal Reserve Board of Dr. Adolph C. Miller, who had for two years been assisting Secretary Franklin K. Lane in the affairs of the department. Dr. Miller had taken a special interest in the national parks, the administration of which had previously been very much lacking in purpose and uniformity. Under Dr. Miller's guidance, a beginning had been made in the work of coordination; but it was apparent that something much more definite needed to be done. New problems were arising that required the entire attention of an able administrator, one conversant with business methods as well as sympathetic with the expressed purposes of the national parks. At this juncture the name of Stephen Mather came naturally to both Secretary Lane and Dr. Miller, for they had all been together as undergraduates at the University of California and had maintained a close friendship. What the course of national park history might have been had someone other than Stephen Mather been chosen for the task, it is impossible to conceive; it certainly would have been different, for his colorful individuality was a dominating factor throughout the fourteen years of his administration.

The establishment of a separate bureau for the administration of national parks had long been advocated by the American Civic Association and other bodies, including the Sierra Club, and the furtherance of this plan was one of the new Assistant's earliest considerations. Provision for such a bureau was finally made by act of Congress, August 25, 1916, and on April 17, 1917, it was made

effective by enactment of the necessary appropriations. By this time Stephen Mather had become so absorbed in his duties and so deeply interested in the solution of the many problems confronting him that he readily acceded to Secretary Lane's request that he continue in charge, and he accepted the appointment as the first Director of the United States National Park Service, a position which he held until severe illness compelled his resignation in January, 1929. His term of office thus fell within the terms of three Presidents of the United States and overlapped those of five Secretaries of the Interior. Even after his resignation, it was difficult to think of him as other than a sort of director-emeritus, and during the last year of his life he enjoyed the dignities if not the responsibilities of office.

Stephen Tyng Mather was born in San Francisco on July 4, 1867. He grew up in the bay region, and, in 1883, entered the University of California, from which in 1887 he received the degree of Bachelor of Letters. He was a member of the Sigma Chi Fraternity, to which he was faithfully devoted throughout his life. In fact, his loyalty to California, to his university, to his fraternity, to his college classmates, and to his friends was one of the outstanding points of his character. On his visits to California he rarely failed to spend an evening with his fraternity brothers at their house in Berkeley. Sigma Chis and University of California men always took precedence over governors, congressmen, or even royalty, with Stephen Mather. In later years his circle of friends was extremely wide and varied; but it was always a source of special gratification to him when his college friends and his fraternity brothers showed a sympathetic and active interest in his public work.

Another great influence upon his life was the training he received from 1887 to 1892 as a newspaper reporter on the *New York Sun*. He became adept at interviews with influential business men and learned a great deal about the conduct of important affairs. Later in his public life, this newspaper experience was invaluable because of the insight it gave him into the mechanism of publicity. It also established a bond between him and the representatives of the press, among whom he numbered some of his staunchest friends.

In 1893 he entered the borax business. For ten years he was with the Pacific Coast Borax Company, most of the time in Chicago. Very early in his career he was intrusted with important responsibilities, and he rapidly became a leading figure in the industry. The intro-

duction of package borax into the market under the caption of "Twenty-Mule Team Borax" was largely his work.

In 1903 he left the Pacific Coast Borax Company and organized an independent company, known at first as Thomas Thorkildsen & Co., later (1907-1923) as Thorkildsen-Mather Company. In 1923 he bought out Thorkildsen's interest and changed the name to Sterling Borax Company. In the early days of this independent company the road was extremely rough, and it was only by perseverance and prodigious effort that he and Thorkildsen were able to keep pace with formidable rivals. At length prosperity came, and a harvest was reaped which provided him with a substantial fortune. The extent of this fortune has sometimes been overestimated by the public, and even by his friends, but it sufficed to enable him to accept the call to public service and to carry out through his own means many projects for which government funds were not available.

In another field his earlier experiences prepared him for his national-park work. Stephen Mather always loved vigorous out-of-doors life. He never cared for hunting or fishing, but he loved camping, loved the mountains and the magnificence of vast stretches of open country. He was an enthusiastic member of the Sierra Club. In 1905 he joined the club's outing to Mount Rainier and climbed to the summit. In 1912 and on many subsequent occasions he visited the club's encampments, always delighting in the comradeship with his many friends, happy to be treated as one of their number without distinction. On these occasions, and on his later visits to the unfrequented spots in the national parks, he was always ready to "rough it," sleeping out under the stars, riding interminable miles on horseback, plunging through thickets and scrambling over rocks to see whatever was to be seen. During the years of his directorate he set a record for personal inspection of the territory under his supervision that will be exceedingly difficult for any successor to duplicate.

The principal achievements of Stephen Mather's administration of the national parks are so well known as to need no recapitulation at this moment. As time goes on they will stand out more clearly and their value will be apparent. He possessed a remarkable imagination and frequently saw far ahead of the needs of the hour. He could not understand sometimes why others would not go along with him in his efforts to bring about a realization of his visions.

Stephen Mather was never the man to hestitate for fear of making mistakes; on the contrary, he was bold, often to the point of rashness, and many a time did he find himself far out on exceedingly thin ice. But the speed with which he moved and the fundamental integrity of his character carried him over dangers and enabled him to make remarkable escapes from impending disasters. He encountered opposition, of course, and some very bitter things were said against him; but for the most part they were said by persons whom he had thwarted in selfish designs or with whom, in the public interest, he was compelled to disagree. Never, while in public office, did he do a single act that could be construed as for his own personal advantage. On the contrary, he spared neither himself nor his fortune in his unceasing endeavor to preserve the national parks from private exploitation and to make them serve the high purposes for which they were designed. That he made generous donations from his own funds for the acquisition of privately owned lands in Sequoia National Park, for the construction of the Rangers' Club House in Yosemite, for saving the redwoods, and toward the purchase of the Tioga Road, is well known. To describe the extent of these contributions and the details of many others would make a longer story than can be told here; suffice it to say, that they comprised a very substantial part of his means.

One cannot discuss Stephen Mather's work without continually returning to aspects of his own character. He was a very lovable man; even his enemies could hardly help liking him. His own associates would argue with him, plead with him, at times resist him, but in the end their affection for him would prevail. Working with him was always interesting; his enthusiasm was irresistible. Hon. Louis C. Cramton, Member of Congress from Michigan, in a speech in the House of Representatives on January 15, 1929, admirably sums up the results of this inspirational quality:

> "By no means the least factor in Mr. Mather's success in coordinating, administering and developing the national-park system has been his uncanny ability to pick the right man for a particular job; and the loyalty to the cause, as represented by the chief, has caused many a park superintendent and other officer to give up opportunities for larger financial returns to stick to the 'park game,' as they call it. Working under Mr. Mather has been a game in the truest sense of the word.

> "I have in my service of many years on the Committee on Appropriations come into rather close contact with many branches of the Government service in Washington and in the field, and nowhere have I seen such uniform devotion to the highest ideals of service to the country, such unselfish team-work, such an *esprit de corps* as in the National Park Service as organized and built up under Stephen T. Mather."

This thought is also expressed in a letter from Secretary West accepting Director Mather's resignation:

> "Under your splendid leadership the people of the Nation have been awakened to the beauties and possibilities of the national parks and the necessity of conserving these areas for all time. So firmly have you built the foundations of the National Park Service that it is now bound to move firmly onward along the lines of greatest service to the people. Not the least of your achievements was the ability of attracting to the service an unusually high type of men whose loyalty to their parks and to the chief who formulated its policies will insure its continued success.
>
> "Taken all in all, you have achieved results that I believe no other man could have accomplished in the early days of organization and administration during the trying period of the World War and its aftermath."

The honors that came to him were received by Stephen Mather more as mandates to complete the tasks he had undertaken than as distinctions to be enjoyed. One token of recognition, however, he cherished above all others; it touched his heart in the same manner as did the love of his friends. On March 22, 1924, at the inaugural of President William Wallace Campbell, the University of California conferred upon him the honorary degree of Doctor of Laws. No happier or more appropriate words could have been chosen than those with which Dr. Campbell saluted him upon that occasion:

> "STEPHEN TYNG MATHER: MOUNTAINEER AND STATESMAN, LOVER OF NATURE AND OF HIS FELLOW MEN; WITH A GENEROUS AND FAR-SEEING WISDOM HE HAS MADE ACCESSIBLE FOR A MULTITUDE OF AMERICANS THEIR GREAT HERITAGE OF SNOW-CAPPED MOUNTAINS, OF GLACIERS AND STREAMS AND FALLS, OF STATELY FORESTS AND QUIET MEADOWS."

A TRIBUTE TO W. B. LEWIS

By Horace M. Albright, Director, National Park Service

IT is difficult for me to write of the passing of Washington Bartlett Lewis, Superintendent of Yosemite National Park for eleven years and later my assistant in the Washington Office in charge of the important Branch of Lands.

The difficulty arises not from a scarcity of material, for many pages could be written about "Dusty," or "W. B." as we called him; but rather from a natural disinclination to speak of the things that hurt us most. To the National Park Service and to the individual members of the staff, officially and personally, the loss was in irreparable one. His circle of friends was an astonishingly wide one, and of course it included hundreds of Sierra Club members.

In his moderate span of forty-six years, W. B. Lewis had a fuller and more interesting career than falls to the lot of most men. Born in Marquette, Michigan, in a lumbering and mining region, he naturally turned to engineering as a profession. Vacations were spent working with timber-cruising outfits in the forests of northern Michigan, Winconsin, and Minnesota. After his graduation from the University of Michigan, he joined the topographic branch of the United States Geological Survey in 1907, spending his field seasons in various portions of the West and in Alaska, and his winters in Washington, D. C., working up his notes and maps. Bernice Carle, of Parkersburg, West Virginia, was also in Washington in the winters, attending school. They met, and Miss Carle later became Mrs. Lewis.

In 1909, W. B. began the spectacular part of his career, going to Alaska as head topographer for the first National Geographic Society Expedition to Alaska, sent out to study glacier action as depicted by the living glaciers of the region. He also accompanied the second Alaskan Geographic Expedition in 1910.

In 1911, when the Argentine Government requested the United States to supply a commission of engineers and geologists to make exploratory surveys in Patagonia in connection with the development of underground water supplies along the zone of influence of the

Patagonia Railroad, then under construction, Lewis was lent by the Geological Survey to take over one of the engineering jobs. After two years he came back to the United States for a brief vacation, married Miss Carle, and together they returned to Argentina by way of Europe. The work was completed in February, 1915. In connection with his Patagonian mapping, Lewis had the experience of living in a tent continuously for twenty-seven months, and he rode something over six thousand miles on horseback.

Another year of mapping in the United States followed. Then Stephen T. Mather, at that time in charge of national parks, as assistant to the Secretary of the Interior, needed a man of outstanding ability and personality to take charge of Yosemite National Park. He appealed to the Director of the Geological Survey, who recommended W. B. Lewis for the job. W. B. was appointed in March, 1916, and served as superintendent for eleven years, a period of service that has not been equaled by any other park superintendent in the entire history of the national parks.

When Lewis took charge of the Yosemite it was being operated on a temporary basis, the soldiers who had formerly administered it having been but recently withdrawn. An organization was needed, and this was soon developed. His ability to select good men, and to bind them to him with ties of loyalty and devotion, was indeed rare.

Two great problems then confronted the superintendent. One was the development of government utilities, such as roads, trails, water and sewage systems, buildings for headquarters and personnel, and allied activities. The other was the development of a public-utility service to care for the needs of the visiting public. Both problems were exceedingly difficult. Federal funds for development work were decidedly lacking, and conflicting interests among the public-utility operators did not make for harmony. To keep peace between the various interests, thus assuring service, was a Herculean task and one which no other park superintendent has had to undertake.

This tremendous task must have tried the patience and physical endurance of Lewis almost to the breaking-point. I believe that his arduous duties, combined with two serious illnesses in 1921, undoubtedly shortened his life. Overconscientious, he returned to his work too soon after a serious attack of pneumonia, and in a few months he had another serious illness. This time, although warned to return slowly to the full assumption of his duties, he was con-

fronted by many tasks needing his personal attention, and again undoubtedly returned to full-pressure work before he should have done so.

He never again seemed quite so strong, and in 1926 suffered a heart attack which caused his resignation a year later. After a few months of rest at Parkersburg, he joined the Washington office staff and served as Assistant Director in charge of the Branch of Lands. He had supervision of all land matters, the mapping division, the historical parks and monuments, and other general duties. He made another splendid record in Washington, being one of the biggest producers the office ever had. He played a large part in the acquisition of the Yosemite timber holdings, purchased by the Government in cooperation with John D. Rockefeller, Jr.

Even when ill, "Dusty" never lost his famous smile or his kindly ways. He was a great raconteur, and his stories and sunny disposition made him one of the most sought after officers in the service in Washington. When apprised of his death, one of his old chiefs paid him this tribute: "The nation has lost one of its great citizens."

Members of the Sierra Club will, I am sure, be pleased with the action of the United States Geographic Board in giving the name Mount Lewis to a peak in the Yosemite portion of the High Sierra.

MOUNT RAINIER, FROM KLAPATCHIE PARK
Photograph by Walter L. Huber

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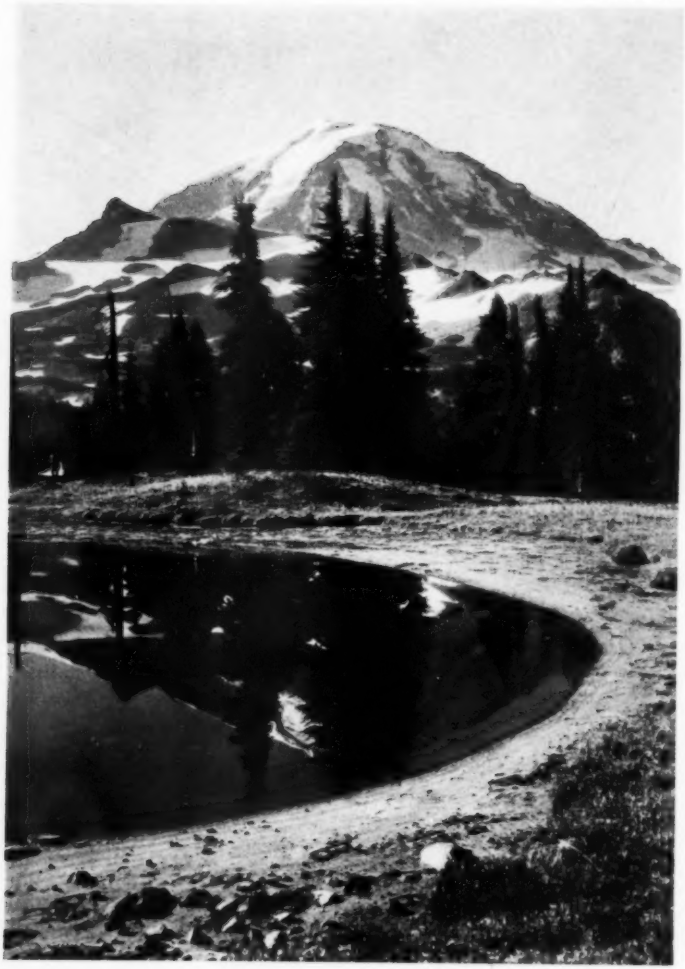

SPRAY PARK, MOUNT RAINIER NATIONAL PARK
Photograph by Walter L. Huber

A FRIENDLY VISIT IN THE NORTHWEST

By Walter L. Huber

GLIMPSES which they had had of the Northwest, and particularly of the great mountain of this region, while on the way to more distant points, together with enthusiastic invitations from some or our own northern members, lured five of the Sierra Club's regulars to a new adventure for 1930—participation in the outing of The Mountaineers in Rainier National Park. Things began with the gathering of the clan at the stage office in Seattle—not unlike the departure of the annual Sierra Club Special from Oakland Mole. The same enthusiasm, and particularly the same spirit of comradeship, was evident from the start.

Professor Edmond S. Meany, president of The Mountaineers for more than twenty years, had suffered an injury some months before—motoring being more dangerous than mountaineering—and his arrival on the scene just before our departure not only set at rest any lingering doubts as to his participation, but added a final touch to the high spirits of the party.

After an enthusiastic welcome to the park by Superintendent Tomlinson, the motor caravan halted at a point where an innocent-looking trail left the road. Here the dunnage-bags were added to a cache of provisions to await the attention of Heinie Loss and his efficient pack-train, and here, too, we first met L. A. Nelson, our "Little Big Chief," who in the next three weeks fully sustained his reputation for quiet, efficient management. This trail connected with the Wonderland Trail, by which we were to completely circle Mount Rainier, or, as we soon learned to call it, "The Mountain." Long before this trail was built, and before Mount Rainier National Park was established, John Muir described the beauty later to be disclosed by it:

> Of all the fire-mountains which, like beacons, once blazed along the Pacific Coast, Mount Rainier is the noblest in form, has the most interesting forest cover, and, with perhaps the exception of Shasta, is the highest and most flowery. Its massive white dome rises out of its forests, like a world by itself, to a height of fourteen thousand to fifteen thousand feet. The forests reach to a height of a little over

> six thousand feet, and above the forests there is a zone of the loveliest flowers, fifty miles in circuit and nearly two miles wide, so closely planted and luxuriant that it seems as if Nature, glad to make an open space between woods so dense and ice so deep, were economizing the precious ground, and trying to see how many of her darlings she can get together in one mountain wreath. . . .
>
> Altogether this is the richest subalpine garden I ever found, a perfect floral elysium. The icy dome needs none of man's care, but unless the reserve is guarded the flower bloom will soon be killed, and nothing of the forests will be left but black stump monuments.*

A member of the party, who returned to the cache a few minutes after the start, discovered a mother bear and her two cubs breaking into our food supplies with as much unconcern as if they had paid outing deposits. In Rainier Park the bears are quite in the habit of helping themselves.

Wonderful camp-sites at Van Trump Park and Indian Henry's were merely forerunners of the beauties in which we were to live for three weeks. Professor Meany explained that about 1870 a Cowlitz Indian began hunting mountain goats in the region now known as "Indian Henry's Hunting-Ground." Henry Winsor, a pioneer mail-carrier, asked his name and got an unpronounceable answer. "That's no name," said Winsor; "your name is Indian Henry." His joke has survived. Mount Ararat overlooks Indian Henry's and commands a wonderful view of Mount Rainier. Concerning the origin of this name, Henry Longmire wrote Professor Meany: "I named it because I found there some long slabs of wood that had turned to stone, and I thought they might have been part of old Noah's boat. I also found a stump with a ring around it, as if his boat might have been tied there. It was all stone."

The first of the so-called "high-line" trips came between Indian Henry's and Klapatche Park. It consisted of a romp over the lower portion of the Tahoma Glacier, which saved the great drop to the South Puyallup River with the corresponding climb out of its cañon, the route taken by the less adventurous climbers of the party. Klapatche Park is a camp-site of undescribable loveliness. We had wonderful views of the mountain, in ever-changing lights, with Aurora Peak in the foreground, all reflected in a lake which was an

* *Our National Parks.* By John Muir, 1901. Pp. 30-31.

intimate part of the camp-site. The ascent of Aurora Peak afforded views out of all proportion to the difficulty of securing them. This, too, is a spot dear to all members of The Mountaineers because of its association with one of their former leaders, George E. Wright, for whom a memorial tablet is placed upon its summit. The trip to nearby St. Andrews Park revealed new beauties, as well as opportunities to acquaint ourselves with some of our bear neighbors. Below camp, in the cañon of the South Mowitch, were Washington forests at their best.

A "high-line" trip past Tokaloo Rock and over Puyallup Glacier to Sunset Park, and a "low-line" trip thence to Spray Park, brought the party to another lovely camp-site where three days were spent in exploring Russell and Flett glaciers and nearby ridges. Crossing Carbon Glacier to Mystic Lake camp proved good experience for later glacial work.

From Mystic Lake the official climb of Mount Rainier was started. I still have memories of discussions of foot-gear—during a day spent in this camp there was no other topic of conversation. Our cobbler worked long hours, indeed. Next morning most of the camp turned out for the big adventure—some forty to participate in the climb and as many other willing volunteers to carry packs over the first ridges and up the rocky slopes to the edge of Winthrop Glacier. Here, after messages of Godspeed, rightful owners shouldered their packs and launched out in a line over the ice. For some distance all went well; but in the upper ice-falls much time was required to conduct the party safely through a mass of crevasses and over some narrow bridges of ice where double ropes were used. Plans were shifted and camp was made at Steamboat Prow, some four hundred feet higher than as first intended at Camp Curtis. Steamboat Prow, the last rock when the mountain is approached from the northeast, cuts into the ice like the prow of a steamer and separates Winthrop from Emmons Glacier. We named our camp-site "Fo'c'sle Camp," being part of the Steamboat Prow. With sunset the temperature dropped abruptly; so no time was lost in piling up rock cairns about our bed-spots to afford a little shelter. In most instances preparation for retiring consisted in donning extra wraps, even rain-coats, before crawling into sleeping-bags. The evening had been clear; but flashes of lightning, followed by distant rumblings of thunder at 3:00 A.M., were ugly warnings of the weather to be encountered on the climb.

Nevertheless, the start was made, the worst of the crevasses conquered, and an elevation of some thirteen thousand feet attained, before a real snow-storm with blinding wind made further advance, particularly for a party of this size, impracticable. Descending to Steamboat Prow, we shouldered our packs, made our way to Inter Glacier and glissaded, some standing, some otherwise, to the Starbo Trail. A night's rest and a tramp to Berkeley Park brought us back to the main party.

Here we inspected the new development being made at Yakima Park and which makes the northeastern part of the park readily accessible to the automobilist. We also enjoyed the new Sourdough Trail, which is being constructed for the benefit of those who prefer scenery from vantage-points not reached by automobiles.

The weather cleared completely as soon as our climbing party returned and the mountain still called. Seventeen climbers planned a second attempt. The horses carried our packs to Starbo Trail and from there we trudged back to the selfsame bed-spots at "Fo'c'sle Camp." The morning was clear and cold, with a full moon lighting our way. With a start at 1:50 A.M. we made rapid progress until, before dawn, our plans were rudely broken by injuries to one of our number who fell into a crevasse. The remainder of the day was spent in bringing him down to medical attention. The splendid work of our leader, Ray Conway, in connection with the rescue, including the descent into the crevasse, was outstanding. As our supporting party had moved on to Summer Land, further attempts at Rainier's summit were abandoned for this outing. A delightful stop at Ohanapecosh Park and a long tramp via Cowlitz Divide and Stevens Cañon brought us to Paradise and to the end of a splendid outing.

In memory I still picture wonderful vistas of flower-strewn upland meadows, with the grand old mountain always present, new found friends and kindred spirits, and, too, as at the close of campfire, I can hear Ned blowing taps across the lake.

VAN TRUMP PARK, MOUNT RAINIER NATIONAL PARK
Photograph by Walter L. Huber

VAN TRUMP PARK, MOUNT RAINIER NATIONAL PARK
Photograph by Walter L. Huber

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KLAPATCHIE PARK, MOUNT RAINIER NATIONAL PARK
Photograph by Walter L. Huber

ON THE USE AND MANAGEMENT OF THE ROPE IN ROCK WORK

By Robert L. M. Underhill
Chairman, Committee on Rock Climbing, Appalachian Mountain Club

Climbing With and Without the Rope.* — Rock-climbing ability is very largely a matter of inborn talent and its use the result of natural instinct. Most good rock climbers have developed spontaneously, or at most under the imitation of others, and their early careers have consisted in carefree wanderings over the faces of cliffs, untrammeled by the presence of the rope and unworried by responsibility for companions. The rope, when they are first introduced to it, seems to them largely a restraint and a nuisance. They perceive, indeed, that in an occasional squeamish situation the protection it affords would greatly expedite matters by removing the grounds for hesitancy, and they allow that it increases the opportunities for acquiring altruistic merit in this world by giving a man the chance to tie himself up to weaker brethren and take them where they ought otherwise not to go. But their idea of a real climbing holiday is likely to remain an independent spree over the rocks, with the rope left coiled up in the closet at home.

Now, it is necessary to realize that the rope, in its final meaning, is the symbol which transforms an individualistic into a higher social enterprise. A bevy of unroped climbers, attacking a peak each for himself, will enjoy the pleasures of independence and self-sufficiency, but they will very likely pay for these by the less pleasant elements of personal competition and rivalry, under conditions ill-suited to them. With the roped party an entirely new set of attitudes and values supervenes. There is no question of rivalry, for each member has a definite position in the party, with definite responsibilities. Instead, the opportunity is fully given for developing comradeship and the consciousness of standing solidly together, under stress, for a common

* The present article considers its subject primarily from the standpoint of organized club climbing, and is founded very largely upon experience gained with the Appalachian Mountain Club during the last six years. No treatment of such a subject could, however, be independent of that by Mr. Geoffrey Winthrop Young in his book *Mountain Craft* (reviewed in Sierra Club Bulletin, 1921, vol. xi, no. 2, p. 226), and his remarks have in fact served to interpret much of the experience gained. Reference is made to this book, and especially to the chapter entitled, "Climbing in Combination," for a more comprehensive discussion.

cause. This is one of the finest experiences that mountaineering can afford. Furthermore, the climbing group is incomparably more efficient, just from the standpoint of morale, than the individual. The effective strength of a party lies very largely in its leader, and the strength of the leader is in turn very largely due to his social function. He feels himself the trusted forefront of his party, its selected delegate and instrument, and therefore, although he knows that the rope itself is often of no practical value to him, he moves ahead with a courage and confidence, an ease and security, that few persons climbing on their own responsibility could manage for long, if at all. For these reasons, even when the members of a party are of equal ability, the presence of the rope, uniting them into a true functioning group, adds much both to their capacity and to their final satisfaction.

LEGITIMATE USE OF THE ROPE.—There would probably be less objection to the rope on the part of most good climbers were its true use more generally understood. *The purpose of the rope is protective only;* under ordinary conditions, *it may never, with propriety, be used as a direct help in climbing.* Every pitch must be surmounted by one's own unaided abilities; to ask for a tug on the rope, or to employ it as a handhold, as beginners are always tempted to do, is to make use of artificial assistance which the leader himself did not possess and which destroys the value of the climb. The average run of guides, indeed, are always ready to encourage their tourists to grasp the rope in a difficult situation; but then guides have little interest *how* their man makes his peak so long as he *does* make it, and makes it quickly, permitting them to finish their job and return to the hotel in good time to secure another for the next day. According to amateur standards, however, no pitch has really been climbed where the direct aid of the rope has been resorted to, and since failure to climb any single pitch generally means failure to make the peak itself, no peak where this has occurred can properly be included in a climbing record. This rule of course is infringed hundreds of times each season, chiefly through ignorance; one desirable result of organized club climbing should be to secure its more general observance. However, this rule has some necessary exceptions. If a party is caught by oncoming darkness or bad weather, or has lost the way and is following an unnecessarily difficult route for a space, it may be highly desirable, to save time, that the following members come up by direct use of

the rope, and this can hardly be charged against them. Moreover, when a leader has surmounted a pitch by a *courte-échelle*, i. e. by standing upon his second's shoulders, it is naturally in order for the latter himself to follow up hand over hand upon the rope.

It is sometimes said that the rope "equalizes abilities" between the stronger and weaker members of a party, but this is wrongly put.* It merely *equalizes risk*, by providing for the weaker followers an artificial margin of safety which the stronger leader possesses by virtue of his natural capacity. An artificial equalization of *abilities* would not be in the interests of sportsmanship.

THE ROPE ITSELF.—Manila hemp, Italian hemp, and flax are rivals as materials for climbing ropes. Granted that each is of the best quality, long-fibered, no clear order of priority in point of strength has yet been established as the result of the various tests. Personal preference is based upon secondary qualities, such as initial pliancy, pliancy when wet, and durability.

The two standard English alpine ropes, one of manila and the other of flax, come very high when imported. The best procedure is to go to a first-class maker of yachting cordage and obtain his best four-strand, seven-sixteenths-inch rope. It should be good for a dead-weight strain of something over 2000 pounds.

Braided ropes have never disclosed the same strength, in tests, as "laid" ones. They are, however, beautifully supple under all conditions, and make ideal reserve ropes for roping down.†

Ropes should be new every season. Experiments conducted for the Appalachian Mountain Club at the Massachusetts Institute of Technology showed that ropes of all kinds, after normal use during a single season, had lost over one-half their strength.

LENGTH OF THE ROPE.—A party of two, tackling difficult rocks, should be bound together with an 80-foot rope. For a party of three, 120 feet is the best length, and there should be a somewhat greater interval between the leader and the second man than between the second and third men. On exceptionally long pitches the second man can then unrope if necessary, having a free end tossed to him after

* Except, indeed, that the "moral support" of the rope may be an important factor in determining ability. Many persons can climb, on a (physically unused) rope, passages they could not accomplish alone.

† Five-sixteenths-inch is large enough for such a rope.

the third man has first gone up. But a much greater than 70-foot interval (corresponding to an 80-foot rope) between two men soon becomes impractical: few leaders can climb ahead trailing such a weight of rope without having it affect their balance critically on the difficult passages they are supposed to be undertaking.

It is convenient to purchase rope in lengths of 200 feet or its multiples, cutting each such length up into one rope of 80 feet and one of 120.

COILING AND CARRYING THE ROPE.—The rope is best made up around the foot and knee, as one sits. If the first loop is passed around the foot from right to left and secured to the loose end by a square knot (thus getting this end safely out of the way), the succeeding loops will fall conveniently from left to right. The length of two loops, at the final end, should be wound spirally around the coil, after a preliminary half-hitch, and knotted, when the whole is in good shape for various methods of carrying. Swiss guides generally knot the tying string of the rucksack over the coil at one point and then let the coil hang, in a flat circle, between the back and the pack.

In undoing the rope it is generally futile to toss it in a heap, after its spiral binding has been removed, or to hurl it, guide-fashion, over a cliff in the hope that it will straighten itself out in the fall. Time and temper are saved if one suspends the coil on one arm and takes the loops off successively, one by one, as they were put on.

It is customary to relieve the leader of the work of carrying the rope to the beginning of the climb, as his strength most needs conserving. But when the climb is over it is sportsmanlike for the leader to assume the rope (often increased in weight and awkwardly stiff from water or ice) for the trudge homeward.

KNOTS.—End-men should tie on with the bowline. This has been shown by experiment to retain more of the strength of the rope than any other knot, owing to the fact that it contains no sharp loops and involves no direct counter-pulls. A leader who seriously anticipates coming on the rope should use a "double-knotted bowline"—i. e. one with a double small loop—which preserves 92 per cent of the strength of the rope.

The illustrations of the "double-knotted bowline," the "bowline and coil," and the "butterfly," as well as the instructions accompany-

ing them, are from an article on "Knots for Climbers," by C. E. T. Wright and J. E. Magowan, in the *Alpine Journal* for May and for November, 1928, (nos. 236 and 237, vol. XL). Thanks are due to these writers and to the Editor of the *Alpine Journal* for their use.

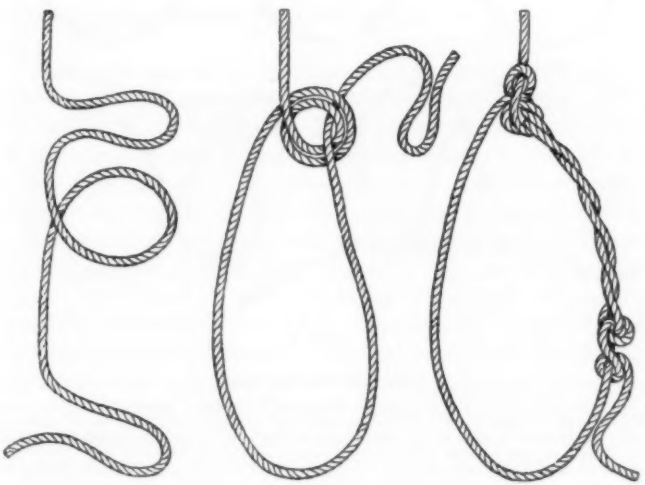

FIGURE 1

THE DOUBLE-KNOTTED BOWLINE

"Begin by making a counterscrew loop just as in the "bowline." Take up a small bight in the rope just beyond the loop and turn it back in the same sense to form a second loop, which must be laid on the first. Pass the end down through the double loop, round over the rope and up through the double loop again. Secure the end with a few turns and a couple of half-hitches made upward inside the rope at the waist."

The simplest knot for middle-men is the ordinary overhand loop; but it is also the weakest, as well as the most awkward to untie when jammed. The so-called "middle-man's noose" (an adaptation of the fisherman's bend) pulls loose if the strain is put upon a certain one of its ends: one must therefore know which end should run to the leader; and even then the knot will be insecure on a traverse where the effective holding may occur from behind. The best knot for middle-men is the "butterfly."

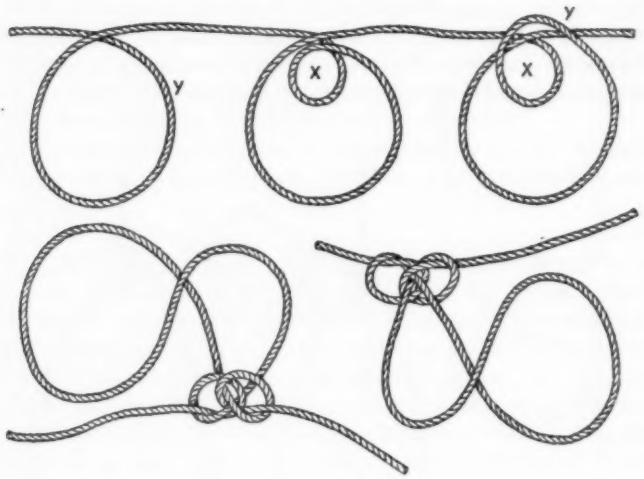

FIGURE 2

THE BUTTERFLY NOOSE

"Hold the rope with the two hands, the thumbs pointing toward each other and separated by a length of rope more than ample for the waist. Bring the hands together, the right in front, to form a right-hand loop, which hold, hanging in the left hand with the fingers passing through the loop from behind (Stage 1). With the right hand take the right-hand part of the loop at Y fairly close to the neck, and with a movement of the right hand make a small right-hand loop or turn round the left fingers at X. Keep it in position by placing the left thumb over it, and keep it open with the left fingers (Stage 2). Pass Y up over the rope (Stage 3) and through X from behind. In pulling it through, take it with the right hand and give it a half-twist screw-wise, which will cross the parts of the noose at the base and make it easier to draw the rest of the noose after it. In doing this do not pull the knot taut. It is better to strain the ropes and bring the knot into its proper form before tautening it.

"Put the noose on and adjust it to fit by passing the spare through the knot, keeping its form by holding it firmly in the left hand. The noose should always be put on so that its parts cross each other in the middle of the knot, the position into which they naturally fall. Tauten the knot but little.

"Open by drawing the wings of the butterfly apart, or pulling the noose back through the knot.

"In the illustration the finished knot is shown twice. In the figure to the right the knot has been turned over merely to show the inner side. The figure to the left gives its normal appearance."

NUMBER ON THE ROPE.—The fastest rock-climbing party is one of two; but it is less safe, and in some ways less efficient, than the rope of three. On club climbs, owing to the relative paucity of leaders, the latter is almost a necessity. More than three on a rope, in rock climbing, is very slow and cumbrous; on snow and ice, however, the

rope of four is often well enough. Except in emergencies, there should never be more than four on one rope, no matter what the traveling. With greater numbers all proper rope-technique becomes impossible, and the wearing of the rope itself passes from an element of security into an actual menace. The wholesale accidents to ropes of large numbers, which are so frequently reported, are no more than what ought to be expected under the circumstances.

THE ORDER ON THE ROPE.—If two, or even three, climbers of approximately equal ability are making a difficult ascent together, they will probably take the lead by turns. None wants it throughout, owing to its exhausting demands, while each wishes to try his hand at it. Generally, however—and this is always the case on club climbs—there are marked differences of skill and experience, and the positions on the rope are consequently fixed. Let *A*, *B*, and *C* be three climbers thus graded according to ability. Then the order on the ascent will be *A–B–C*. This is on the principle that the strength of the party should be concentrated at its head, where the chief struggle is going on. That *A* leads is self-evident; but, on difficult rocks, he will often require the sort of backing up that only a relatively experienced second can give. (It will appear in the sequel that the duties and responsibilities of the second man are often very considerable.) *C*, the weakest climber, is put in the position where his mistakes and shortcomings can least affect the progress of the party as a whole.

But if the course involves a number of traverses which it is inadvisable that *C* be left to cross last, secured only from one side, or if the ascent (e. g. a ridge climb over a series of gendarmes) contains a number of secondary descents which again *C* cannot make as last man, while to reverse the entire rope in each such instance would require too much time, *and if* the regular run of pitches is not so difficult that *A* requires really expert backing, then the order *A–C–B* may be preferable. (Guides regularly use this order, placing their tourist between two of themselves. But their professional principle of coddling the weakest—and the paying!—member of the party cannot of course rule on amateur climbs. Moreover, on really difficult ascents guides themselves use the order *A–B–C*, meaning a double-header of professionals with the tourist last; or, if they dislike to leave him thus unprotected, they insist that a third guide be present, who then follows the tourist in fourth place.)

On the *descent* the order is *B–C–A*. *A* goes last, affording his companions the direct protection of the rope, but himself descending without it. *B* leads, his experience being of service both in finding the route and in solving the technical problems of the various pitches; he can then materially assist *C*, and consequently expedite the movement of the entire party, by specific coaching. *C* has the responsibility of belaying *B*, but this can be done under *A*'s supervision.

PARTY ORGANIZATION.—Groups of two or more ropes following in order provide an organization particularly adapted to club climbing, as it takes care of greater numbers with fewer demands in the way of leadership. For as second-rope leaders men can be employed who would not yet be qualified to take charge of an independent string. The second-rope leader need not find the route, and the technical problems of the pitches are made easier for him through his observation of the earlier rope struggling with them, while on the one or two very difficult passages he can be dropped a securing line by his predecessors.

The group composed of two ropes of two each is in every way the best and most delightful of rock-climbing parties. It is nearly as fast as the single rope of two, and it has the reserve of strength necessary for meeting what might be considered both the normal and the abnormal contingencies of climbing. The party composed of two ropes of three each is generally the largest that ought to be on any given course at any one time, owing to the danger of loose stones.

ON MODERATELY DIFFICULT ROCKS—THE SHORTENED ROPE.—Rope technique varies radically according as the party is moving simultaneously and continuously over rocks of only moderate difficulty or one at a time up difficult "pitches."

In the former case the full length of the rope will not be required, and, if a considerable stretch of such climbing is anticipated, it will be convenient for the first and second men of a rope of three (on the descent, the second and third) to throw half a dozen coils of it over their shoulders. Grasp the rope with both hands, in front of the body and about four feet apart, thumbs pointing outward, much as a child holds a cord for skipping rope, the rope running from the chest knot to the right hand and then back across the body to the left; swing this section up over the head and back of the left shoulder, so that a loop

is formed running up and over the right shoulder and back and down under the left arm. When a sufficient number of coils are thus in place a new knot must be made, involving all of the coils *and the chest loop,* down at the left front; otherwise a pull on the rope will tighten the coils around the chest. (Deaths from strangulation, due to this, are on record.) The knot most used for this purpose is a flat knot made with a bight of the standing rope, which is pushed down under the coils and chest loop and then tied to the standing rope itself, but such a knot is awkward in itself and completely untrustworthy, as it is forever coming loose. Far better is an adaptation of the "bowline and coil," made with a loop of the standing rope together with the rope-end from the original chest knot (which end must have been left long enough for this purpose).

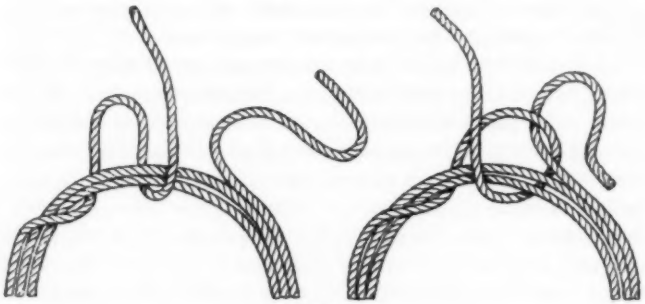

FIGURE 3

THE BOWLINE AND COIL

"Make as many turns round the waist as may be desired, passing the end always to the left, until the rope where it enters the coil and the end where it leaves the coil come close together in front. Take the rope at its entry into the coil in the left hand and with the thumb push a bight down inside the coil. Bring the bight forward under the coil (Stage 1) and press the rope a little to the left to lie across the bight. This forms the same right-hand loop as in the simple "bowline," but with the difference that the loop encircles the coil. Just as before, pass the end down through the loop (Stage 2), then to the left over the rope and up through the loop. Finish off the end by giving it a few turns round the bight of which it is the continuation and a couple of half-hitches round the coil, passing the end upward inside the bight or coil."

ROPE MANAGEMENT DURING CONTINUOUS MOVEMENT.—Though the rope, when it *is* needed, may be needed past calculation, to a party traversing not difficult rocks it is apt to seem for over nine-tenths of the time just something thrown in to make climbing in every way harder. The constant care that it demands lest it unexpectedly

jerk the man in front or tug the man behind, lest it catch on points of rock, jam in cracks, drag itself over sharp edges, through water or through snow, or loosen falling stones, is at first sheer vexation of spirit. Relief can come only when training and practice have made one so unfailingly "rope-conscious" that attention to its ceaseless demands has become automatic—while it always helps somewhat if one can develop an element of pride in the dexterity of one's rope-management, as in a minor art not without its own value. Until a party has become thus thoroughly "broken to the rope" its members will be sure to send back and forth along the line to each other a succession of such little irritations as will, in the aggregate, seriously color the climbing day. Splendid individual climbers who come late to the discipline of group work are especially likely to remain for some time offenders in this respect, causing, by their vagaries and irresponsibilities in handling the rope, much suppressed annoyance to their less capable but better-schooled companions.

First of all, "the arm, with the hand, has above all things to learn the mechanical swing which frees, frees, frees the rope in front of you, before, after, and even during each step, at whatever inconvenience to yourself."* Next, one must move with the minimum of interference to the others. To this end each member of a party requires a certain range of freedom, to allow for individual accelerations and retardations, since it cannot be expected that the ground will be of uniform difficulty or at least that various climbers will find it so. Hence the second and third men, on either ascent or descent, carry a number of coils of the rope ahead of them in the left hand; these are dropped and picked up again according as the distance to the men ahead increases or diminishes, without the need for calling upon these latter to modify their gait.† (This, however, they should of course instinctively do when they feel that a follower is in difficulty.) Nothing is more instructive in this connection than to watch a first-class guide in action. His party, say, is descending a fairly difficult chimney; the guide, as last man, shepherds down his two tourists, facing out-

* Young: *Mountain Craft*, p. 214.

† It may be worth remarking that, in contrast, when a party is moving together over covered glacier no member of it should carry any such easily loosened coils in the hand. Either the rope should be kept taut from waist to waist between each pair, or, if some rope-adjustment for varying intervals is desired, the coils may be carried *with a turn taken around the hand* after the last one, to provide a secure grip. For otherwise, if any member falls into a crevasse, he will at once drop the length of the coils carried by himself and his next neighbor, thus increasing both the danger of the fall and the subsequent difficulty of his extrication. Ignorance of this rule is extremely widespread.

ward and ready at any moment to lock himself by jamming into a rigid holding position should either of them slip. Reaching the easier ground below, the tourists inconsiderately start off at increased pace, leaving the guide still in difficulties. He, however, drops coil after coil as they move away; then, slithering rapidly down the lower reaches of the chimney and taking its last five feet in a clean jump, he races after his party, gathering up his coils again as he closes the interval. Not once has he found it necessary to utter that continual plaint of the amateur, "Wait a minute!" and throughout the rope has run neatly and directly from himself to his predecessors, instead of draping itself loosely about the rocks in those deep festoons which so regularly grace—and impede—the movement of an inexpert party.

To have to climb with a coil of rope in the left hand is of course a handicap, and it may seem improper that this should be placed upon the two weaker members of the party, as it is, at least upon the ascent. Guides seek to obviate this by themselves carrying the loose rope; the tourist then follows like a tame bear, tugged at whenever he falls behind. In an amateur party, where one is free to assert one's dignity, one will generally prefer the handicap of the coils. In places of greater difficulty one can frequently throw one's handful of rope up ahead of one, thus freeing both hands. Moreover, matters are somewhat evened up by the fact that a leader also should carry a couple of coils for purposes of belaying—a subject to which we now come.

Securing During Continuous Movement.—To put the rope to its essential purpose, that of affording security, is both easier and more difficult, upon simpler rocks, than it is upon pitches. It is easier, physically, because owing to the character of the terrain the question is only one of *checking a slip,* not of breaking an abrupt fall. It is assumed that the strain on the rope will not be severe and that it need not be met instantly (these two, in fact, being the conditions which justify any carrying of loose coils at all). One who slips must immediately sing out—the false pride of manly silence is here a social offense—whereupon the men above him at once stiffen into positions of solidity. A leader carrying a little spare rope may be able to throw a quick belay over a rock beside him; a second man holding a third can use his coils for a similar purpose, anchoring himself and taking the jerk directly on his chest loop. At any rate, rocks adapted to continuous movement are by nature such that secure stances are

present throughout them, and the watchful and experienced climber should be able to adopt adequate holding positions at call.

But, psychologically, to meet the demands which may be made upon one under such circumstances becomes very difficult. Rapid movement over relatively easy rocks begets a sense of security, lulling to rest the tense apprehension of momentary danger; one becomes preoccupied with the fascinating personal problem of getting over the ground with the maximum of speed and the minimum of effort, and tends to lose one's sense of group responsibility. Hence the call, when it comes, is only too likely to find one unprepared—a bit nonplussed, in fact, and hesitant during the golden moment, before the final tug comes, when one should be jumping into the stable position which training and the situation dictate. Here the professional guide will always be the incomparable superior of the amateur leader. He is so accustomed to traveling with climbers of the most unaccountable sort, persons who find occasion to slip in the least reasonable of places, that he is habitually never off guard. Even when climbing ahead on the ascent, he shows an uncanny sensitiveness to untoward occurrences in his party behind him; the least maladroitness in the rear secures from him a reflex compensating response. The amateur leader who would be adequate to his functions in this connection should himself have followed such a guide and imbibed some of his attitude and manner.

On Pitches—Supporting the Leader Morally.—It is upon "pitches," i. e. passages which must be climbed in one heat, owing to the absence of intermediate stances, that the rope enters into its chief use and that its management becomes, correspondingly, most complex.

Arrived at the foot of the first pitch, *A*, the leader, drops any coils of rope he may have been carrying, and throws off, if the pitch looks long, any he may have placed about his shoulders, looks around to see that *B*, his second man, has likewise arrived and is ready to assume his functions, and attacks the problems before him. And now, while *A* is climbing, *B* becomes the key-man of the party. Nothing could be more erroneous than to suppose that he is momentarily off-duty, free to contemplate the landscape, indulge in a smoke or a bite to eat, or enter into casual and airy conversation with *C*. Aside from the fact that he has positive tasks upon which to concentrate, any such attitude of carelessness would operate seriously to impair *A*'s morale.

A leader, struggling alone with difficulties, must have nourished in him the feeling that he is the center of his party's tense interest; that he is every moment, it is scarcely too much to say, carrying with him their hopes and fears. Leave him morally, as he necessarily is physically, alone, and you cut the nerve of his inspiration and enterprise. No indication should ever go up to him that his party has mentally forsaken him or that the occasion has for them anything but the earnestness which it is bound to assume for himself. For maintaining the general atmosphere in a state thus favorable to *A*'s condition of mind, *B*, as the man nearest in communication, is primarily responsible. *C* indeed may sit, smoke, and enjoy the view—and his long waits and uninspiring tail-end position certainly entitle him to that much compensation — but *B* may not become an active partner in his distractions.

On the other hand, *B* should not annoy *A* with a series of questions ostensibly expressive of friendly interest, but in reality generally too much the product of a disconcerting impatience. "How is it going?" —"Can you make it?"—"Are you up?"—"Shall I come?" Let him possess his soul in peace, be his intentions never so good.

TENDING THE LEADER'S ROPE.—Of *B*'s positive duties, the first and basic is to tend *A*'s rope as it moves upward. For this purpose he takes it in both his hands, letting it run out along a favorable line. He must be constantly alert to see that it does not snag or jam, while, if it is in danger of doing so, he must under no circumstances whip it loose with a swing or snap. Should a kink or snarl appear, he quickly straightens it out while the rope is still running, only in the last resort calling to *A* to stop—for *A* may well be in a position where he *cannot* stop. As the rope approaches its end, he calls out, like a sailor heaving the lead, "Ten feet more—six feet—four feet!" in order that *A* may be warned in time to seek a suitable stance.

The importance of thus tending the leader's rope can hardly be overestimated. Most leaders rightly dread a backward tug on their rope, capable of pulling them off balance in the middle of a ticklish step, far more than they apprehend a fall due to the difficulties of the rocks themselves. Here too the ounce of prevention is worth the pound of cure, and the average leader would probably prefer a second man known for his unfailing alertness in watching the rope to one clumsy and unreliable in this respect but skilled in all the arts of belaying.

The unforgivable but by no means uncommitted sin in this connection occurs when, *A* calling down that his rope is caught, it devolves that *B* is himself standing upon it. Any second man once guilty of this precious bit deserves to be demoted from his position for the remainder of the season!

BELAYING THE LEADER. — *B*'s second and more difficult duty, granted his adequate performance of the first, is to belay *A*, should the latter request it. (And every leader *should* request it, for the sake of his party if not of himself, at least upon all exposed faces and all delicate traverses.) It is in the art of establishing such a belay that a good second man can most distinguish himself—not by his experience, for fortunately few persons indeed have any in respect of this contingency of a leader's fall, but by his theoretical knowledge of principles and imaginative anticipation of consequences. The simplest notion of a belay is of course to feed the rope around a spike or bulge of rock; but it is a lamentable fact, deduced from numerous tests, that if a leader falls clean from over eight to ten feet above, sustaining a sheer drop of sixteen to twenty feet or more, the rope (*any* rope practical for climbing purposes), thus rigidly fixed, will most certainly snap. The remedy lies in what Young calls the "indirect belay," which is effected by interposing in some way the body of the belayer himself as a spring between the prospective weight and the final rock support. "If we have fair room to balance, we play the rope entirely free with our arms and the spring of our body, using only an anchor * to the rock if we need it. If we have not room, and especially if we are protecting a leader, whose fall would jerk us off most positions of free balance, we put the rope over the point and play it round with both hands, ready to grip and spring it upon our arms if a jerk comes. Or we pass the active rope round our forearm or over the thigh or across the shoulder, on its way to the belay-point."† The rock-climbing world is in dire need of a specific treatise by an authority such as Mr. Young describing in detail the various attitudes possible for the indirect body belay; meanwhile, its arrangement is left in each case to personal ingenuity. Every second man should however clearly understand that if he merely lays the rope around a

* Young distinguishes an *anchor*, "the loop of inactive rope with which a stationary climber secures himself to a rock point," from a *belay*, "which is the rock-and-rope attachment by which the active rope of a moving man is protected while it is running out or being pulled in." (*Mountain Craft*, p. 219).

† *Mountain Craft*, pp. 221-222.

rigid rock in such circumstances he is not even nominally doing his duty by his leader—in fact, he has as good as arranged at the outset, in case of accident, for a break in the rope which will save himself and the remainder of the party at the expense of the man climbing ahead.

BELAYING THE SECOND MAN.—*A*, having finished the pitch and arrived at a secure stance, at once casts about for a belay upon which he can hold *B*, and having found and laid the rope over such, or, in default of this, having adopted a position for holding the rope about his own body, he rapidly takes up such slack as remains. All this he can do while still regaining his breath, and by the time the slack is up he will have recovered sufficiently to be adequate to his next function. He now calls down simply, "Come!" and *B*, having already surmised the stage affairs have reached from the halt in the rope's advance followed by its rapid run-out to the end, and prepared himself accordingly, replies at once, "Coming!" and immediately starts to climb. No further passages of conversation are required between the two at this juncture—though out on the rocks a great many more will generally be heard before *B* finally gets going.

In belaying* from above, as distinguished from below, there is no objection to the use primarily of a rock spike, but even here the mechanical rigidity of such an arrangement needs some correction. The natural tendency is to seize the rope with both hands *beyond* the belay, in what seems like an immovable holding position; but under this method all sensitiveness of contact with the climber below is lost. *A* should stand facing the belay, one hand (say the left) *ahead* of it, upon the rope as it comes up from *B*, and the other beyond it; with the former hand he then *feels B* constantly, keeping the rope taut and under exactly the right tension at all times, while with the latter he takes in or pays out the slack and prepares to hold in case of emergency. Given a good belay, and the hand grips not too close up to it (which sacrifices friction and leverage), the average man will find one hand quite strong enough to hold if need be, or at least to hold

* A second man will sometimes call up that, the pitch being relatively easy, he does not require to be belayed, but wishes only that his rope be taken in out of his way as he climbs. Under such circumstances, however, no leader should stand in such a position that he could not eventually manage to hold if necessary; and, in general, to make a practice of such methods is dangerous, as it tends to make a leader careless in adopting and arranging his ordinary belays. Only a guide in continual training, or an amateur of unusual strength, can hope to be adequately prepared in case of a fall when merely holding the rope in his hands.

until the other can be transferred to assist it. Most guides indeed, who (it has been already remarked) have no interest whatever whether their tourists climb a pitch legitimately or not, are accustomed to sit down behind a belay, grasp the pulley-end of the rope firmly with both hands together, and prepare to haul or hold. The amateur belayer, however, should play his man like a fish. As *B* advances or momentarily retires (to make a new start at a difficulty), *A* takes him up or lets him out again, seeing to it that the rope is always ready to catch him with the minimum of jerk in case of a fall but never stretched enough to act as a real support in the ordinary course of climbing.

Body Belay.—Should no rock projection be available *A* must use a body belay, and, if the proposed rock belay is such that there is the slightest chance of the rope's slipping off it or jamming, this is the sounder position anyway, *for one experienced in it.* Sometimes a rock formation is such that, whereas it will not serve as a direct belay, its position or character fits it to serve as anchoring-point for a static rope to help preserve one's balance while one uses a body belay. This combination makes a very secure arrangement.

Body belays are made either standing or sitting. The instinct to get the center of gravity low generally urges the latter position, and we are often tempted to adopt it even when the brace for the feet or knees is by no means adequate. To one who has learned how to dispose his balance to meet a prospective pull the standing position seems equally secure, and it has the added advantages of utilizing more of the natural spring of the body and (generally) of leading the rope up to the belayer more directly, with less bending and scraping over corners. On the frequent case of the narrow ledge it is the only possibility. Generally speaking. sitting belays should be taken only when we are forced to sit anyway. as astride a ridge or jammed into a chimney. They are really secure only when at least one leg can be almost straightened against its brace, or the body otherwise locked behind a support. The rope goes round the waist, or under one and over the other shoulder, running *up* along the straightened leg, and is played with the two hands. one grasping it before and the other after it has passed around the body, so that sensitive touch can be maintained with the climber.

The standing belay can be made in three different ways, as illus-

trated in the photographs on Plate xxx. The rope may be supported either above the hips or upon a shoulder, and in the latter case one may stand either sideways to or facing the front of the cliff. In each case one leans sharply inward from the cliff, with the outer (forward) leg *nearly* extended and the inner (back) leg well bent; both legs thus afford a spring. (The outer leg should *not* be rigid. This would not only diminish the value of the spring, but in meeting a strong pull we should tend to pivot vertically around this leg, off balance, instead of being merely dragged downward, behind our point of support, upon the bending knee.) Further details for the three cases are as follows: (1) Hip belay. The stance is diagonal, about halfway between the sideways and forward positions. The rope comes up along and in front of the outer leg, to pass over and behind the outer hip; it is grasped below and in front of this hip by the outer hand, palm outward. It then encircles the waist and is held by the inner hand, palm outward, below and in front of the inner hip. (2) Shoulder belay. The rope comes up along the outer (or forward) leg, to pass over and behind the outer hip, and is grasped there as in (1). It then crosses the back and comes forward and down over the shoulder corresponding to the inner (or back) leg, and is held high up by that hand, palm of course inward. (Note carefully that in the forward position the rope comes *up* on the side corresponding to the extended leg, and passes first *under* that shoulder. Not infrequent mistakes are to bring it up on the side of the *back* leg, or to pass it first *over* the shoulder, or both.) In each case one hand grasps the rope before, the other after, it has passed round the body; the former *feels* the climber, the latter holds him.

Each of these three positions has its own peculiar advantages, according to the specific circumstances, and one should be familiar with them all. With the hip belay the tendency to be pulled out of balance is less, as the force is applied lower down and closer to the center of gravity; but this method puts a greater strain upon the arms and hands, which have to hold the rope in around the hips in order to obtain the necessary support, a factor of considerable importance for persons of relatively less strength (e.g. women). Also, the shoulder belay can be managed with one hand if necessary, leaving the other free to adopt a balance handhold, so that on difficult stances which yet afford such handholds it may be the safer. (There is, besides, a question of relative comfort, requiring individual solution, between the hip

and shoulder belays: the former takes the cut of the rope at a more sensitive spot, while the latter puts a greater strain upon the—possibly weak—muscles of the back.) As between the two different forms of the shoulder belay, choice depends upon the steepness of the rock. The sideways position, by permitting a more decided inward lean, enables us better to resist an outward pull, and it should therefore be adopted where the angle of the rock is such that a strong pull from this direction may be anticipated.* But on steeper rock, where, with the climber more directly below us, the outward component of pull is little and the downward component great, the forward position seems preferable, as it provides more effective friction of the rope about the body. Probably, as among the three types of attitude, the natural instinct of most climbers would suggest the sideways shoulder belay. It cannot be too strongly recommended, however, that instead of following this instinct without more ado they should experiment exhaustively with the other positions as well.

No one should have to attempt a body belay in a critical situation who has not had experience of just what it means to have the full weight of an average man thus thrown upon him.† Few persons are prepared for the tremendous drag downward that ensues—aware how firm must be the knees and how secure the balance to withstand it, or conscious how great a difference is made by the presence of even a little initial slack in the rope, permitting a drop which increases the effective weight. This last factor is so important that anyone using a body belay in a situation where his balance is at all doubtful must put a marked tension upon the rope, in spite of all the rules for amateur climbing and all specific protests from below, to ensure himself against the possibility of a shock. And for the same reason *B*, the climber, should at least see to it that there is never any noticeable slack in the rope. For him to climb ahead while *A* neglects his business, keeping a proud silence with regard to the loop of slack that is developing, is to place *A* most unfairly in a situation that will in all likelihood eventuate disastrously for him as well as *B* in case of the latter's fall.

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* The sideways shoulder belay has also the unique property of enabling us actually to *lift* the man below, if necessary. Holding well with the outer hand, just above the level of the knee, bend quickly forward and inward as low as possible, swooping the inner hand downward to the ground to take in, over the shoulder, the slack thus created; now straighten up again, holding firm with the inner hand. Readjust the hand-grips and repeat.

† The Appalachian Mountain Club, warned by several near-accidents, has instituted the practice of accustoming leaders to this situation by arranging for falling tests, under proper safeguards, on local outings.

"Take up the slack!"—"Take up the slack!" should be called out insistently at every step until *A* finally grows alive to his duties both to *B* and to himself.

THE SUCCESSION OF PITCHES.—As soon as *B* appears at the stance —the moment, in fact, that he has grasped holds which will enable him to reach it securely—*A* throws the rope off the belay (be it a rock or his own body), and steps deftly aside, ready to enter upon the next pitch, leaving the stance itself free for *B*. Retarded reactions on *A*'s part, chaining him uselessly to his belay until *B* is within handshaking distance, frequently cause a deal of awkwardness and delay, from subsequent congestion of traffic, at this juncture. And *B*, immediately upon popping his head over the stance, should have fixed his attention upon *A*'s belaying position and absorbed all its details, so that he need not later inquire when he comes himself to belay *C*. He can reserve his exclamations about the pitch just climbed until a second or two later.

Supposing now that the next pitch is such that *A* requires only the tending of his rope, and not a belay, for himself, *B* can, if he is skillful and reliable, bring up *C* while *A* simultaneously climbs ahead. He has now the double task of belaying *C* and watching *A*'s rope at the same time. But he must never forget that his first duty is always toward *A*, the least-protected member of the party. Should *A*'s rope snag or snarl he must call out a warning in time, and then get *C* quickly into a position of provisional security until the mischief can be remedied. While his hands are automatically engaged in juggling the rope to *C*, his eye must never for a moment leave that traveling up to *A*.

If, however, *A* requires to be belayed for the succeeding pitch, then *C* must wait patiently during another period of climbing. Eventually he moves up to *B*, *B* to *A*, and *A* goes ahead again. Under no circumstances may *C*, without express permission from above, essay to climb to *B* while *B* is exclusively occupied with *A*. It is a first principle of roped climbing that no member of the party must move unless the others know that he is doing so and are prepared to accept any consequences. Otherwise all would be endangered by the irresponsible act of one.

When *C* has arrived at *B*'s platform there is a splendid opportunity for the latter to demonstrate his natural capacity to keep things ship-

shape, or the reverse. Somewhere on the little ledge lies the rope taken in from *C*; right with it lies the remainder of the slack to *A*; in the middle of the web stands *B* himself, perhaps entwined with a body belay which he has difficulty in shedding cleanly. To watch the antics of some second men in extricating themselves from this muddle of rope and getting all the lines into running order again, free from twists and kinks, is soon no longer funny, when it occurs at each stage of a climb.

On the Descent.—The descent of pitches involves no new principles of rope management (if we exclude the specific operation of "roping down"), but it does call for an even more careful application of those already discussed. To tend or to belay the rope of a leader descending last requires extreme delicacy of handling. For in this case he does not drag out his own rope, as upon the ascent, keeping it taut automatically, but we have to take it in for him, establishing its proper tension ourselves. On the one hand it must constantly be brought in out of his way as he climbs, and ever closer to its belaying point; but on the other this movement must never amount to the slightest tug upon him, an effect even more disturbing to a climber descending than to one ascending.

As the man from above arrives upon the stance, the man already there throws the rope off the belay, if he has been using one, and places his own rope over it, ready to be held. He can then at once take his departure, without waiting for the newcomer first to discover and adjust the belay to be used for him.

Rope management on the descent is also far harder, psychologically, than upon the ascent. A party intent upon a goal willingly submits to discipline, and may even take pride in it; one taking the inevitable homeward way, with success a thing of the past, too easily becomes lax in this regard. In the late afternoon hours, when we are wearily descending a series of pitches that have long since ceased to be interesting to us, the tendency is strong, following our wish to get ahead and be done with it, to leave the man behind more or less to his own devices. Climbing on the rope, on major expeditions, is always a matter which requires rigorous training and the development of fixed habits of response, and upon no occasion more than upon this.

Roping Down.—A final word may be added on the subject of descending by means of the doubled rope. This procedure enables one

C D

BODY BELAY

A—Hip Belay B—Sideways Shoulder Belay

C—Forward Shoulder Belay (incorrect) D—Forward Shoulder Belay (correct)

UNIV. OF MICH.

C ROPING DOWN D

to drop securely down over passages that have been climbed only with the greatest difficulty, or that could not be ascended at all. Besides being a valuable aid upon ordinary climbs, therefore, it may make possible the traverse of a peak by a descent over a series of precipices upon an inaccessible side. Furthermore, under sudden changes of weather, it often provides the only safe means of exit from a precarious situation.

Several methods of roping down are in vogue, but it is strongly believed that the following one, a favorite in the Tyrol, is much the best for all-round purposes. It is simple, quick, and reliable in adjustment, smooth-running and comfortable, and capable of adequate regulation in the amount of friction-braking that it affords.

The doubled rope having been placed about a suitable belay, stand astride it, facing inward, and grasp it in front with the right hand; pick it up behind with the left hand, thumb to the rear, and carry the loop forward, upward, and across over the head, so that the rope now runs under the left thigh, up across the body in front, and down over the right shoulder. To decrease the friction, lift and feed the rope up behind with the left hand; to increase it, tighten the rope by a grip there (Plate XXXI, A). To stop and lash oneself fast in case of emergency (as when a pause is necessary to consider the route, or step-cutting must be undertaken at the landing), bring the free end forward over the left shoulder and down between the legs again. If the rope shows any tendency to slip off the right shoulder during the descent, turn slightly sideways, with this shoulder uphill.

The secret of an easy and competent rope-down, as of so many other things, is freedom from stiffness and hesitation. Walk resolutely backward over and down the cliff, throwing the body backward into the rope and keeping the legs perpendicular to the slope. Take the whole thing jauntily—*dance* down the cliff! An expert will let the line simply slide through his hands, and, keeping a steady even tension, to prevent the rope's being sprung off the belay above, run swiftly and smoothly down; or if the attachment above is secure against jerks, he will shrug the rope loose upon his shoulder and drop down in long bounds, springing away from the rock. Such a rope-down is immensely exhilarating.

If the cliff is really perpendicular, or even overhanging, a development of this method is in order. In adjusting the rope, carry the loop around the neck (turn up the coat-collar) and let it fall down again

in front of the left shoulder (Plate XXXI, B). This so increases the friction that one can now sit in the rope and descend by its support alone, the feet hanging free. Either both hands grasp the rope above, as when working over a shelf, or one hand holds the free end, to control the braking (Plate XXXI, C). If, as may be the case, the friction proves too great (especially at the start, with a great weight of rope hanging below), reduce this adjustment to the preceding one by throwing the rope off the left shoulder (Plate XXXI, D).

The doubled rope is recovered from below by pulling upon one of its ends (see that there are no knots). Before the last man has descended a test should be made to see that the rope runs freely around the belay. In many cases this will require the use of an auxiliary rope-sling, cut to length from a supply of lighter reserve rope and tied in double or treble thickness around the belay. The main rope then runs through this sling—which has of course to be abandoned upon each occasion.

SIERRA CLUB

Founded 1892

402 Mills Building, San Francisco, California

THE PURPOSES OF THE CLUB ARE:

To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada.

John Muir, President 1892 to 1914

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SIERRA CLUB BULLETIN

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Francis P. Farquhar . . . . . *Editor*

Ansel E. Adams, Francis M. Fultz, Walter L. Huber
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EDITORIAL

The Sport of Mountain-Climbing

While it is true that a large proportion of those who visit the High Sierra are not particularly interested in climbing the more difficult peaks; nevertheless, there are many who do enjoy climbing, and doubtless this number will increase. In the early days there were many opportunities for first ascents and other adventures now no longer available; but while today there is scarcely a peak of importance remaining unscaled, that does not mean that the sport is at an end. On the contrary, those who are familiar with the development of mountaineering in other parts of the world can see plainly that there is a vast field in the Sierra as yet untouched. This is the field of rock-climbing. There is no more use in trying to explain to the non-climber the joys of this sport than there is in trying to explain to the non-fisherman the thrills attendant upon fly-fishing for trout. The fact remains that there is rare sport in climbing, provided that it is done under proper conditions. Not the least important of these conditions is safety. The modern technique of climbing has vastly increased the factor of safety by developing a knowledge of what can and what cannot be done under certain circumstances, and, especially, by developing a knowledge of the correct use of the rope. If we are to have safe climbing in the Sierra, we must avail ourselves of this knowledge. As a step in this direction, there is printed in this number of the Sierra Club Bulletin a most generous contribution from one of the foremost students in America of the art of mountaineering. Dr. Underhill, who, besides being chairman of the Appalachian Mountain Club's committee on rock-climbing, is also vice-president of that club and editor of *Appalachia*, prepared this article at the special request of the editor of the Sierra Club Bulletin for the purpose of stimulating an interest in correct technique among our members. By putting these principles into practice it is believed that mountain-climbing in the Sierra will be made both safer and more enjoyable. In fact, the element of enjoyment is quite as much a product of this technique as is that of safety; for the use of the rope, as Dr. Underhill so aptly points out, implies a social group working in harmony for a common purpose.

Francis P. Farquhar

REPORTS OF OFFICERS AND COMMITTEES

TREASURER'S REPORT

To the Directors of the Sierra Club:

The following report on the finances of the Sierra Club for the year ended December 31, 1930, is respectfully submitted.

JOSEPH N. LE CONTE, Treasurer

Received: GENERAL FUND

Dues from 307 new members at from $2.00 to $5.00	$1,193.00	
Dues from 1771 regular members at $4.00	7,084.00	
Dues for former years	720.00	
Dues paid in advance	20.00	
Dues at special rates	37.00	
Total dues received		$ 9,054.00
Interest on savings accounts	179.48	
Interest on bonds (portion from Permanent Fund)	92.50	
Sale of club pins	14.00	
Sale of SIERRA CLUB BULLETIN	134.00	
Sale of *Place Names*	67.35	
Sale of *Ramblings in the High Sierra*	527.71	
Donations for library purchases	70.00	
Bequest—Estate of Aurelia S. Harwood	1,000.00	
Bequest—Estate of Benjamin F. Seaver	100.00	
Sundry small receipts	10.65	
Total miscellaneous receipts		2,195.69
Total received		$11,249.69

Disbursed:

General Administration:		
Salary of Assistant Secretary	$1,380.00	
Extra clerical help	100.00	
Office rent, Mills Building	680.00	
Office expense, postage, stationery, supplies	348.73	
Telephone and telegraph	78.37	
Election expenses	101.50	
Traveling expenses—Directors' meeting	90.00	
Storage	52.79	
Sundry small expenses	41.75	$ 2,873.14
Sierra Club Bulletin:		
Printing magazine number	$3,055.03	
Illustrations—photographs and plates	298.24	
Mailing	115.26	
Total (Forward)	3,468.53	2,873.14

Sierra Club Bulletin (continued):		
Total (Forward)	$3,468.53	$ 2,873.14
Less receipts from advertisements	300.80	
Net cost of magazine number	3,167.73	
Printing bi-monthly numbers	215.00	
Mailing bi-monthly numbers	149.44	
		3,532.17
Chapters:		
Southern California Chapter	999.50	
San Francisco Bay Chapter	414.00	
		1,413.50
Mountain Lodges:		
Construction of Muir Pass Shelter Hut	5,810.48	
Less donation from George Frederick Schwarz	3,500.00	
Balance	2,310.48	
Purchase of Mount Shasta Lodge site	2,528.00	
Contribution to Harwood Memorial Lodge	1,000.00	
		5,838.48
Miscellaneous:		
Library	82.84	
Taxes	51.76	
Purchase of club pins	7.50	
San Francisco local walks schedule	128.68	
Dues to other clubs	27.00	
Contribution to National Conference on State Parks	50.00	
Preliminary expenses—*Ramblings in the High Sierra*	97.63	
Expenses in connection with Harwood Lodge	91.25	536.66
Total disbursed		$14,193.95
Summary:		
Total received	$11,249.69	
Balance January 1, 1930	7,007.45	
Total		$18,257.14
Total disbursed		14,193.95
Balance December 31, 1930:		
Crocker First National Bank	$1,445.02	
American Trust Company—Russ Building	2,593.17	
Office cash fund	25.00	$ 4,063.19

PERMANENT FUND

Received:		
Six new life memberships	$ 300.00	
Interest on savings account	161.29	
Total received		$ 461.29
Balance January 1, 1930		5,789.35
Total		6,250.64

Disbursed: No disbursements.

Balance December 31, 1930:

On hand in American Trust Co. savings account	4,250.64	
Bonds—par value	2,000.00	$ 6,250.64

ROBERT S. GILLETTE FUND

Balance December 31, 1930:

Bond—par value	$ 1,000.00

SPECIAL MEMORIAL LODGE FUND

Balance December 31, 1930:

Bonds—par value	$ 5,000.00

LODGE CURRENT FUND

Received:

Income from investments—Gillette Fund and Special Lodge Fund	$ 275.00	
Balance January 1, 1930	729.00	$ 1,004.00

Disbursed:

Shasta Lodge expenses	$ 621.95	
Less contributions	421.95	
Net expense	200.00	
Salary of Le Conte Memorial Lodge custodian	150.00	
Total disbursed		350.00

Balance December 31, 1930:

On hand in Wells Fargo Bank & Union Trust Co.	$ 654.00

NATIONAL PARKS FUND

Received:

Interest on savings account	$ 79.72	
Balance January 1, 1930	1,973.81	$ 2,053.53

Disbursed: No disbursements.

Balance December 31, 1930:

On hand in American Trust Company—savings account	$ 2,053.53

SUMMARY OF FUND BALANCES

FUNDS:	Dec. 31, 1929	Net Change	Dec. 31, 1930
General	$ 7,007.45	— $ 2,944.26	$ 4,063.19
Permanent	5,789.35	+ 461.29	6,250.64
Robert S. Gillette	1,000.00	.....	1,000.00
Special Memorial Lodge	5,000.00	.....	5,000.00
Lodge Current	729.00	— 75.00	654.00
National Parks	1,973.81	+ 79.72	2,053.53
Total	$21,499.61	— $ 2,478.25	$19,021.36

San Francisco Bay Chapter

While the members of the San Francisco Bay Chapter and their guests have had much fun and profit in the local activities, and have heartily expressed themselves as being well pleased, the Executive Committee feels that the real accomplishments of the year have been the strengthening of the internal organization of the chapter, and tying even tighter the bonds of common understanding with neighboring outdoor associations.

The state park on Tamalpais is now established. Under the guidance of the State Park Committee of the Tamalpais Conservation Club, the collection of funds and the prosecution of the necessary legal details were completed. Many friends with small purses, and some with larger, made up the sum which was matched by the state to purchase under condemnation proceedings the tract lying between Muir Woods and the holdings of the Marin Water District, thus consolidating this great area for the common benefit. In connection with this matter, the generosity of the Kent family is a happy thing to contemplate, and the sacrifice of time and energy by Jesse K. Brown and his committee over a period of years can best be appreciated by those who have observed the progress made by them. The Bay Chapter was pleased to be able not only to contribute directly to the park fund, but also to go to the financial assistance of the Tamalpais Conservation Club when the latter was in need of succor in order to carry on the work of the mountain guardian.

Trail-clearing continues to be a semiannual enterprise of the Bay Chapter. The Executive Committee of the T. C. C., having a membership derived from all the local outdoor groups, serves as a clearing-house for ideas on the needs of our mountain, and its suggestions have always been well seasoned with debate before being served. In the spring we brushed out and graded the Hoo-Koo-E-Koo, whose prospects of forest and bay, and almost unpronounceable name, have long been the marvel and delight of saunterers on old Tam's eastern flank. Autumn found us with axe and machete, hook, snip, mattock, and spade, on the more perpendicular terrain served by the Kent trail.

When holidays come close enough together we are happily forced to select a longer trip than usual from the multitude that beckon. For a long time the appeal of the Humboldt redwoods had been acting on our Schedule Committee, so over the Memorial Day week-end they arranged for us an outing into the Bull Creek Flat district. This has been reported elsewhere in our publications. While reminiscing on the perfections of this venerable forest-land, we feel grateful for the organization work of L. K. Cosper, who smoothed our way, and for the guidance of Warden Thompson, who led us to the summit of Grasshopper Ridge, "never before ascended by white women."

The Tuesday-night dinners of the Bay Chapter have been moved to the Bellevue Hotel. A number of special dinners have been held at which leaders and new members were the guests of honor. At these affairs the speaker of the evening has been a director of the Sierra Club or someone else who has attained special knowledge in the arts of outdoor life. There are valuable possibilities in the development of these evening gatherings.

The San Francisco Bay Chapter was glad to add its mite toward the com-

pletion of the Aurelia Harwood Memorial Lodge, under the auspices of the Southern California Chapter. A visit to this fine substantial structure and the beautiful country in which it lies should be on the program of each one of us when visiting the southland.

Improvements in automobiles and highways and the continuing penetration of the latter seem to make some of our old haunts not quite so secluded as they used to be, but they also bring close to us desirable places hitherto too distant. Thus "the old order changeth, yielding place to new," and the coming months will see an extension of our dominions. LOREN B. TABER

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LE CONTE MEMORIAL LODGE

The decreased attendance by the visiting public at the Le Conte Memorial Lodge during the season of 1930 reflected a similar condition prevailing in Yosemite National Park. It was particularly noticeable early in May and toward the end of summer. The building was closed August 15th, but, as it proved, there was little justification for keeping it open after August 1st. It was a welcome relief from previous experiences to find that no attempt had been made during the winter to break in; all inside was in good order and clean, as it had been left the previous fall. The interior of the lodge has been improved in appearance by a much-needed coat of paint on the woodwork and windows, both inside and out. A second coat of the blue-gray, the old color, is planned for next April, to complete the job. There has been donated to the library a fine ten-volume set of the *Century Dictionary and Cyclopedia*. Of the two sets of John Muir's works presented to the club this year by the publishers, Houghton Mifflin Company, one was forwarded here. Our books are divided into two classes, circulating and restricted, and by the acquisition of these books the older volumes of John Muir's work, which are on our shelves and for which there is much demand, may now be taken out under the usual library regulations, a privilege we have often been obliged to deny.

F. C. HOLMAN, Custodian

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SHASTA ALPINE LODGE

The lodge was opened for the season of 1930 on June 11th, while it was yet surrounded by snow, and closed October 12th, the fresh fallen snow then being a foot deep. Five hundred and forty-five persons registered at the lodge since the 1929 closing, or nearly 100 more than in any previous year. One hundred and eighty-seven of these reached the summit. Many of the summit-climbers were repeaters; that is, persons who have made repeated ascents, some as many as seven, Mount Shasta luring them with her cool fresh air, where they can sport on snowy heights when the sun is high in summertime.

The season was characterized by a very equable temperature, the mercury only getting as high as 74° on two days (July 14th and 22d) and the general average about sunrise was 50°. The lowest temperature during July was 31°, on the 21st, and also 31° on August 31st. The first snow-storm came the

middle of September, when a foot fell at the lodge, and did not entirely disappear for a week, and again, on October 11th, another storm gave us a foot of snow, necessitating the closing of the lodge. The total precipitation for the season, from July 11th to October 12th, was seven inches—rain, hail, sleet, and melted snow—nearly all of which fell during the September and October storms.

The improvements during the summer consisted principally of painting all woodwork and the metal roof. A gift of three fine sets of horns—elk, antelope, and mountain-sheep—was made by an interested member of the Sierra Club, and these have been placed on the wall of the lodge above the fireplace.

Receipts:

Sierra Club	$200.00
Mount Shasta City Chamber of Commerce	100.00
McCloud River Lumber Company	25.00
Siskiyou County Board of Supervisors	25.00
Redding Chamber of Commerce	25.00
Dunsmuir Chamber of Commerce	25.00
Shasta Water Company, San Francisco	25.00
Long Bell Lumber Company, Weed	25.00
Shasta County Board of Supervisors	25.00
Del Norte County Board of Supervisors	25.00
Los Angeles Chamber of Commerce	25.00
McCloud River Club	25.00
San Francisco Chamber of Commerce	25.00
Sacramento Chamber of Commerce	25.00
M. Hall McAllister	21.95
Total Receipts	$621.95

Expenditure:

Custodian's salary (J. M. Olberman)	$390.00
Pack-train and mail-carrier, weekly	158.65
Paint	34.29
Sundry items	39.01
Total Expenditure	$621.95

J. M. Olberman, Custodian
M. Hall McAllister, for the Lodge Committee

NOTES AND CORRESPONDENCE

Trails in Sequoia National Park

It is with satisfaction that the Sierra Club notes the splendid progress made during 1930 in constructing the High Sierra Trail. This easily graded trail will make the Kern River region of Sequoia National Park readily accessible from Giant Forest. Walter L. Huber, who made a special trip of inspection in behalf of the Sierra Club at the close of the field season, reports the trail completed from Giant Forest beyond Bearpaw Meadow to the crossing of the upper Middle Fork of the Kaweah below Lone Pine Meadow. When completed this will be one of the finest high-mountain trails in the United States, both in standard of construction and in magnificence of scenery traversed. Plans are now being prepared under the direction of Colonel John R. White, Superintendent of Sequoia National Park, for the 1931 construction. These include surmounting difficulties of the first magnitude in crossing Kaweah Gap to reach the headwaters of Big Arroyo. The new pass, Kaweah Gap, will be over 1000 feet lower than the present rough trail over Black Rock Pass, will have a better exposure, and will pass through the true *yosemite* scenery of the Hamilton Lake and River Valley country. The location has been carefully studied by Engineer John H. Diehl, whose enthusiasm and hard work have been largely instrumental in pushing the project over the Great Western Divide. Completion of construction to the Big Arroyo will make possible a new and very wonderful itinerary for the 1932 outing of the Sierra Club.

It is also expected that the season of 1931 will show completion of the relocation of the John Muir Trail over Foresters Pass, near Junction Peak. The Forest Service is planning to bring the trail work up to the crest of the pass on the north side, where it will connect with the work being done by the National Park Service on the Kern River side.

During 1930 the trail to the summit of Mount Whitney was completed from both east and west sides.

These trail projects in Sequoia National Park have been under the general direction of Chief Engineer Frank Kittredge, of the San Francisco office of the National Park Service, who has done so much to forward the engineering projects throughout the national parks of the West.

* *
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John Muir Memorial Shelter

Through the generosity of the late George Frederick Schwarz, the Sierra Club was enabled during the season of 1930 to construct a shelter hut on the summit of Muir Pass. This unique structure is built entirely of stone, including the conical roof. The design, by Henry H. Gutterson, San Francisco architect, follows a type of construction much used in the province of Apulia in the heel

of Italy. It was first introduced into the United States through the Agnes Vaille Memorial, on Longs Peak, Colorado, designed by Arthur A. Fisher, architect, of Denver. Mr. Fisher generously contributed the results of his experience, through correspondence with Walter L. Huber, who acted for the Sierra Club in connection with the design of the shelter and organized the construction program. Actual construction was entrusted to the officers of the Sierra National Forest under Supervisor M. A. Benedict, with Mike Wenz as foreman.

It is hard to picture fully the hardships experienced by the workmen. The shelter stands squarely on the summit of Muir Pass, between the watersheds of the Kings and the San Joaquin rivers, at an elevation of 12,059 feet. Since it is several miles above all timber, fuel as well as building materials had to be packed to the site on mules. All sand for mortar was packed nine miles, and during the last of the season even water had to be packed two and one-half miles. The trip from the end of the last road took four days, and much of the time an alternate trip had to be made between each regular trip of the pack-train to bring fuel up from the nearest timber supply. It is then not surprising that the packing cost exceeded all other costs. The costs of this construction, which is quite without precedent, are of interest and are therefore quoted:

		Cost	Portion
Labor:			
Stone masons and workmen		$1,353.00	23.3%
Packing:			
Wages of packers	$ 990.00		
Rent of animals	2,009.00	2,999.00	51.6
Materials:			
Cement	118.80		
Doors and windows	111.15		
Miscellaneous	210.54		
Freight to end of road	343.58	784.07	13.5
Commissary:			
Food	458.42		
Equipment	78.38		
Miscellaneous	6.50	543.30	9.3
Other:			
Medical Supplies	8.10		
Compensation Insurance	123.01	131.11	2.3
Total Cost		$5,810.48	100.0%

* * *

George Frederick Schwarz, 1868-1931

George Frederick Schwarz, whose generous gifts to the Sierra Club and to the Save-the-Redwoods League are mentioned elsewhere in this number of the Sierra Club Bulletin, died at Brewster, Massachusetts, January 1, 1931. He was born at Baltimore, Maryland, April 13, 1868. He attended the Harvard

JOHN MUIR MEMORIAL SHELTER
Henry H. Gutterson, Architect

ON THE NEW HIGH-SIERRA TRAIL, SEQUOIA NATIONAL PARK
Photographs by Walter L. Huber

Law School for a year, but turned to the study of forestry. For two years he studied in Germany and France, and then entered the Division of Forestry of the United States Department of Agriculture. After another year's study of forestry at Harvard, in 1904-1905, he took up the practice of consulting forester. His home was in New York City. He was the author of many articles in magazines and technical journals and of several books. His book, *Forest Trees and Forest Scenery*, published in 1901, shows a fine appreciation of the esthetic values of trees and forests.

* * *

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY
WASHINGTON

November 19, 1930.

To the Secretary of the Sierra Club.

Dear Sir: I am always interested to read your BULLETIN, copies of which you are kind enough to send to me from time to time. I was particularly interested in the item (in the October number) entitled "View from Summit of Mount Diablo." Of course, you know that Mount Diablo is one of the triangulation stations of the Coast and Geodetic Survey.

I am wondering if it would be of interest to the members of your club to include in one of your early issues the enclosed statement.

Very truly yours, R. S. PATTON, Director

Engineers of the U. S. Coast and Geodetic Survey have used a number of mountain peaks in the western states of the Union as triangulation stations. In general, a peak so used is marked by a metal tablet cemented into a block of concrete, a boulder, or an outcropping ledge of rock. The tablet is inscribed "U. S. Coast and Geodetic Survey Triangulation Station. For information write to the Director, Washington, D. C. $250 fine or imprisonment for disturbing this mark." Some of the old stations were marked by copper bolts instead of tablets.

The tablet is approximately four inches in diameter, and in its center is a small triangle, in the center of which is a small hole marking the exact center of the station. In recent years the name of the station and the year in which it was established or re-marked are stamped on the metal tablet. In most cases there will be found near the summit of the peak used as a triangulation station a second tablet, which is the reference-mark. The inscription on it is exactly the same as the station-mark, except that the words "Reference Mark" are substituted for "Triangulation Station." In place of the triangle, there is an arrow nearly two inches long, which points toward the station-mark. The purpose of the reference-mark, of course, is that it may be used in place of the triangulation station, if that should be destroyed.

The Director of the U. S. Coast and Geodetic Survey will be very glad to furnish the latitude, longitude, and elevation of the tablet on any mountain peak which has been used by that Bureau in its work. It is expected that in the next year or two publications will be issued which will give descriptions

of the triangulation stations, together with their latitudes, longitudes, and elevations. When issued, these publications can be obtained from the Superintendent of Documents, Washington, D. C., for a very small sum. Seldom is the price more than fifty cents.

It will, of course, be interesting to members of the Sierra Club to search for these tablets on any mountain peaks they may visit. Should any station-mark be found in poor condition or entirely destroyed, notice to that effect would be appreciated by the Director of the U. S. Coast and Geodetic Survey, Washington, D. C., for he is very anxious that his files should be kept up to date.

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Letters from Other Clubs

APPALACHIAN MOUNTAIN CLUB

The Appalachian Mountain Club, with its steadily increasing membership, now numbering over 5000, has many and varied interests. Formed particularly for the exploration and enjoyment of the White Mountains, the club has been true to its tradition. Although some of its through trails have been turned over to the U. S. Forest Service, it now maintains 320 miles of trail and is constantly adding to this mileage. Scattered along these trails are seventeen "shelters," where the tramper may have shelter and good water. Use of these trails and shelters is free to all. Another service to the public is the maintenance of club huts, six substantial cabins far in the mountains, where resident keepers give food and lodging to 7000 or more climbers annually. The newest of these huts, made possible by the gift of Charles H. Greenleaf, was dedicated on the slopes of Mount Lafayette the past summer. For several years one hut has been kept open all the year, and has proved a welcome center for skiing and winter mountaineering. For its own members the Appalachian Mountain Club maintains four permanent summer camps, two of which are in the White Mountains region. It was in another part of that district that the August Camp, where fifty persons lived under canvas, was pitched.

To many the most outstanding feature of the Appalachian Mountain Club is the series of excursions it sponsors. These range from outings of a few hours on Saturday, through week-end and eight-day trips, to excursions of several weeks' duration in distant mountainous regions. The most ambitious trips this year were a nature-lovers' tour of Yellowstone and Glacier national parks and a rucksack tramp through the Jotenheim of Norway. A new departure was a horseback outing in Vermont. During the winter emphasis was placed on cross-country skiing; trips for experienced runners and for beginners, including instruction in the technique of the Arlberg School, culminated in two parties in the Laurentian Mountains.

The clubhouse at 5 Joy Street, Boston, has been a focus of interest. Here is housed the library of approximately 3000 volumes; here all records are kept and multitudinous routine matters attended to by the Executive Secretary and her assistant. Numerous committees meet here to carry on the business of the club. The service of tea by the hostesses every afternoon throughout the win-

ter gives a hospitable atmosphere. Supper meetings, monthly or oftener, followed by a lecture, are largely attended. The Councilor of Art has arranged eight exhibits of photographs and paintings. Two excellent numbers of the journal *Appalachia* have been published. These contain accounts of the accomplishments of members at home and abroad—a most varied record. The six chapters have shown a healthy growth by increase in membership and activities. The newest of them, the Berkshire Chapter, has shown its enthusiasm by the purchase of a camp, "Noble View."

During its fifty-fifth year the Appalachian Mountain Club has pursued its policy of usefulness to the community and to its own members. There have been such developments as to show that this oldest of American mountaineering clubs is still vigorous and young in spirit.

MARJORIE HURD, Corresponding Secretary

THE COLORADO MOUNTAIN CLUB

This year the club undertook a two weeks' outing in the Wind River Mountains of Wyoming, the first time that such a large group has had the opportunity of visiting the high peaks of this region. The club had more Eastern guests than ever before.

Skiing came into its own this year. The Swiss type of skiing, with cross-country trips, downhill races, slaloms, winter mountaineering, and nursery slopes covered with beginners learning turns, has become popular, and appears very well suited to Colorado conditions. The skiing hotel at West Portal, called Jim Creek Lodge, was full almost every week-end from December to April. The big event for ski enthusiasts of the club was a three-mile downhill race.

Our monthly magazine, *Trail and Timberline*, has been devoted largely to articles on climbing in Wyoming and on skiing, due to these new undertakings of the club.

The Nature Protection Committee has as usual been one of the busiest, and among other things has organized a junior group of the club, composed of high-school students.

During the year we published *Rocky Mountain Letters, 1869*, the letters of Professor Brewer, written during his surveying trip in Colorado.

JOHN L. J. HART

THE MOUNTAINEERS

Marked by no single outstanding event, 1930 has nevertheless been a year of prosperity in Mountaineer activities, of increased participation in all phases of club life.

The growing popularity of skiing has made the winter months rival the summer in expeditions into the hills and enjoyment of them. There are even those who revel more in the vast white stretches, so easy to traverse when snow-covered, than they do in the trail-restricted, shrub-entangled valleys and hillsides of the warmer season. With the Cascade Mountains less than three hours away, and Snoqualmie Lodge and Meany Ski Hut in locations of maximum snowfall, the ski now rivals the ice-axe. The sport is fostered by

definite instructions, by tests to determine attainment, and by competitions for trophies.

When the ground again becomes bare, Snoqualmie Lodge becomes the base for numerous ascents. At present fifty-three names are on the list of "ten-peakers"—that is, those who have climbed a group of ten selected peaks. Now a second ten have been added, to offer still further incentive after the first ten have been accomplished; but so far only one member has completed the record.

The custom of awarding a "six-peak pin" to members who have climbed the six major peaks of Washington, a group arbitrarily chosen, but all snow-capped and glacier-bearing, is of even longer standing. Each year adds several names to this list, which now numbers sixty.

The twenty-fourth annual outing of The Mountaineers, July 26 to August 16, 1930, took the form of a trek around Mount Rainier, with successive camps in nine different parks. The enthusiasm of the entire large party attests the success of the affair, which was under the able leadership of L. A. Nelson, veteran leader and mountaineer. Dr. Edmond S. Meany, beloved president of the club, accompanied the expedition, presiding at every camp-fire, establishing a record of twenty-two Mountaineer outings in as many consecutive years, in spite of the fact that, this summer, owing to a serious accident to his knee last fall, he was obliged to ride a horse and keep to the beaten trails.

WINONA BAILEY

MOUNTAINEERING NOTES

MOUNTAIN-CLIMBING ON THE 1930 OUTING

NOTES BY GLEN DAWSON

Red-and-White Mountain.—From camp on Mono Creek opposite Second Recess, July 6th, Jules Eichorn and I went up the unnamed cañon directly toward Red-and-White Mountain. We passed to the left of the large lake, not going to the outlet, finding this the most direct route. We ascended the large chute at the left (southwest side) of the peak and followed the ridge a short distance to the summit. We returned the same way. This is the route followed by the Hutchinson party on the descent after making the first ascent of the peak in 1902 (S. C. B., 1903, iv:3, pp. 201-202). The only record in the Sierra Club register since the first ascent was that of Norman Clyde, July 3, 1928. July 8th, Ansel E. Adams and Benjamin Lieb climbed the mountain by the northwest ridge (route of the Hutchinson party's ascent) and returned by the northeast ridge (Clyde's route).

Mount Gabb.—Climbed by John M. Olmsted and Charles Dodge, from Second Recess.

Mount Abbot.—July 8th, Jules Eichorn and I made the round trip to the summit from the pass between Abbot and Gabb in two and a half hours. Later the same day, three others made the ascent, followed on July 9th by ten people—a total of thirty-eight registered at the summit, all but two being members of the Sierra Club.

Bear Creek Spire.—After a cool night at timber-line at Lake Italy, Jules Eichorn and I reached the summit on July 9th, in two hours fifteen minutes. The only difficult part was the last hundred feet. As we reached the smooth rock at the summit, a storm began. The only record found was that of J. R. Demster, August 10, 1928; the records of Hermann Ulrichs and Norman Clyde have evidently been swept off from the tiny summit.

Mount Dade.—After climbing Bear Creek Spire, we climbed Mount Dade, keeping to the ridge as high as practicable. The only register was a piece of magazine without covering. The first ascent appears to have been on August 19, 1911, by Liston and McKeen, of Fresno, "locators of this valuable peak." Other records were: Florence E. Atkinson, Sydney Schlessinger, August 1921; and Norman Clyde (date faded). There is an unusual combination of glacier and lake high on the ridge.

Mount Hilgard.—Climbed July 10th by Marjory Bridge, Mildred Ehrhardt, and John Olmsted.

Seven Gables.—My father (Ernest Dawson) led twelve people up Seven Gables, July 11th.

Mount Senger.—Jules Eichorn, R. B. Perry, Jr., and I climbed Mount Senger on July 11th—an easy climb from Sally Keyes Lake.

Turret Peak.—Climbed by Marjory Bridge, Jules Eichorn, and me, July 12th. We found a cairn, but no records.

Mount Darwin.—Thirteen members of the Sierra Club this summer reached the highest point, a pinnacle detached from the large nearly flat top. On July 14th, Jules Eichorn, John Olmsted, and I climbed it. We returned by a steep icy couloir, near the main crest, that broadened into a small glacier. We also climbed a sharp rocky peak on the main crest, just north of Darwin, finding no record of previous ascent. On July 17th, two parties climbed the highest point of Darwin: one, consisting of Marjory Bridge, Caroline Coleman, Mildred Ehrhardt, Stephen Wyckoff, Newton Bell, and Ernest Dawson; the other, consisting of Dorothy Huggins, Charles Dodge, Leland Chase, and Ralph Arthur Chase. The four ladies were the first women to reach the summit. There are now thirty-eight names in the Sierra Club register on the main summit and in the little can on the highest point, but of these only about half have climbed the latter. (See S. C. B., 1926, xii:3, p. 306, and *Appalachia*, December, 1926, xvi:4, pp. 506-507.)

The Hermit.—The highest point is a huge rock about fifteen feet high. On July 15th, a few of us climbed it, and, with the aid of a rope, assisted thirty members of the outing party, including a number of girls, in attaining it. This appears to be the second time the highest point has been climbed, the first being the ascent in 1925 by James Rennie and Norman Clyde (S. C. B., 1926, xii: 3, p. 222).

Mount Humphreys.—Climbed July 16th by John G. Marschke and J. C. Staudinger. A day earlier it had been climbed by James Wright and another member of the California Alpine Club.

Mount McGee.—This mountain is best climbed from Colby Meadow by a snow chimney at the right of the main peak. The record on the summit is as follows: July 11, 1923, Roger Noble Burnham, Robert E. Brownlee, Ralph H. Brandt, Leonard Keeler, Muir Club, Berkeley; August 6, 1925, Norman Clyde; July 16, 1930, Jules Eichorn, John Olmsted, Charles Dodge, Glen Dawson.

Peak 13,701.—This peak, northwest of Mount Darwin, was for a number of years erroneously labeled Mount Wallace on U. S. G. S. maps (Farquhar: *Place Names of the High Sierra*, 1926, p. 101). Jules Eichorn, John Olmsted, and I climbed it July 18th. There was a cairn on the summit, but no record. The chimney by which we climbed was more difficult than climbing Darwin.

Mount Goddard.—July 19th, climbed by Lee L. Stopple, of the Sierra Club, and twenty-one members of the California Alpine Club. July 20th, climbed by nineteen members of the Sierra Club.

Devils Crags.—The highest peak, although not of great altitude, is very spectacular. Prior to 1930 it had been climbed only once and several attempts upon it had failed. John Olmsted, Jules Eichorn, and I knapsacked to a lake near the head of Rambaud Creek, and the next day, July 23d, crossed a pass from which we looked into Enchanted Gorge. Thence we climbed a ridge west of the peak, from which we could see the face of the peak. We had to go down several hundred feet on very rotten rock to reach the base of the peak. We then climbed about six hundred feet up a steep chimney. At one point

this chimney branched, but we kept straight up. Near the top it became so difficult that we went to the left up to the ridge, along which we made our way carefully to the summit. The only record was in a sardine can: "Devils Crag, July 21, 1913. Came up chimney on so. side. C. W. Michael, Sierra Club." Our chimney was on the *west* side, and we came out on the knife-edge *west* of the summit. Mr. Michael says (S. C. B., 1914, ix:3, p. 188) that he came out *east* of the highest point, but this seems to be an inadvertence or a misprint, as the illustration accompanying the account indicates that he reached the knife-edge *west* of the summit, presumably by the same route as ours. From the immediate base the climb took us an hour and forty-five minutes; the descent took the same time.

Mount Woodworth.—Following the climb of the Devils Crag, on the same day, we climbed Mount Woodworth. Six others climbed it later in the day, making about sixty names on the summit since Bolton Coit Brown's ascent in 1895.

Middle Palisade.—On July 26th, John Olmsted, Jules Eichorn, Charles Dodge, and I climbed the Middle Palisade from a timber-line camp; two hours from camp to base, and two hours from base to summit. Ours was the eighth party to make the climb since the first ascent by Farquhar and Hall, in 1921.

Mount Sill.—After a late start, July 27th, John Olmsted, Jules Eichorn, Charles Dodge, and I climbed Mount Sill. We found thirty-nine names in the register, including eleven of this year's Sierra Club outing party besides ourselves. There were no ascents between 1903 and 1925.

North Palisade.—After eating lunch on Mount Sill, we decided to investigate the notch between that peak and the North Palisade. We followed the ridge for a short distance, then climbed down to the right to the chute which leads up to the notch. It was filled with ice; so we went higher and higher until we had climbed the point overlooking the notch. We then went down to the left and reached the notch after overcoming several interesting pitches. A narrow chimney led us to the summit—our third 14,000-foot peak in two days. This is probably the first traverse from Mount Sill to the North Palisade. Hermann Ulrichs, in 1921, was the first to climb the latter from the notch (S. C. B., 1922, xi:3, p. 313). The North Palisade was climbed by the regular route by twenty others from the Sierra Club outing party, including a group of thirteen led by my father. This group is probably the largest that has accomplished the ascent as one party.

Mount Winchell.—On July 29th, John Olmsted, Jules Eichorn, and I climbed Mount Winchell. From Dusy Lakes we ascended a chimney at the left of the peak, encountering some rather difficult rock work. On the summit we found the records of the first ascent, by Putnam, Mansfield, and Newell, June 10, 1923 (S. C. B., 1924, xii:1, pp. 90-91), and three ascents by Norman Clyde, 1925, 1927, and 1930. These ascents were made from the glacier on the east side; ours appears to be the first ascent from the west.

Agassiz Needle.—We came down from Winchell to the glacier between it and Agassiz. Thence we climbed Agassiz and returned to Dusy Lakes. Why this peak is called a "needle," I don't understand; it is a very ordinary peak, although it affords a fine view.

An Ascent of Laurel Mountain

From Convict Lake, Mono County, one sees a great inclined trough lying upon the northeast side of Laurel Mountain. This chute is indicated upon the Mount Morrison Quadrangle as a watercourse. The trough is separated by a band of cliffs from the cleft which bights deep into the eastern precipices of the peak. Midway between the trough and the cleft the cliffs are split by a steep gully. On September 7, 1930, Max Van Patten, of Los Angeles, and I ascended Laurel Mountain by this gully. There were no signs or information of a previous ascent by this route.

The lower thousand feet of the gully provide the most interesting work of the climb. The rock is firm, and belays, although few in number, occur where needed. The steeper pitches average about 60 degrees. The very small amount of loose rock indicates that the gully is swept by snow avalanches. Hence, one's season must be chosen accordingly. The climb as a whole is safe. However, due to the steep angle, a slip would almost certainly be fatal. My companion and I were roped, moved one at a time, and employed the belays. Many capable Sierran and Rocky Mountain climbers might prefer to make the ascent unroped. Nevertheless, if Alpine technique were employed to a greater extent in this country, our death list would be minimized. Fifty feet of rope between climbers is sufficient upon this climb.

The party can unrope after passing this portion of the climb, and the arête at the head of gully is soon underfoot. The rocky teeth atop the ridge are best overcome by direct assault, for deep, uninviting gulfs are on either side. A trudge up over slabs and scree places one upon the summit. The view is extensive, extending from the Sonora group to Mount Humphreys, with the rugged Minarets the dominating feature. Convict Lake can be regained by descending northward until the head of the long brush-covered slopes is reached. A broken-field run down these slopes provides a fitting end to a fine day.

Two days later my friend and I attacked the formidable-appearing eastern ramparts of the south summit of Mount Morrison. The climb was disappointingly easy, the rope not being uncoiled. The long crooked gully below the summit enlivened the day with a barrage of boulders. A safer and more sporting climb can be found by ascending the rocks south of the gully.

John D. Mendenhall

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A Trip to San Bernardino Peak and Mount San Gorgonio

On the evening of June 14, 1930, with knapsack, sleeping-bag, and three quarts of water (total, 45 pounds), I started from Forest Home for the summit of Mount San Bernardino. I took my time going up this trail, and, as darkness soon came on, I had to pick my way by flashlight for some distance without a trail. It was midnight when I reached the top of Mount San Bernardino (10,630 feet), and I slept on the ridge east of the peak. At 4:45 A.M., I started along the ridge toward the east, going around some of the smaller peaks, but crossing over the three higher ones. From these peaks I

had some wonderful views of the San Bernardino Mountains, both north and south. I continued on this ridge until the summit of Mount San Gorgonio was reached (11,485 feet), where I arrived at 1:00 P.M. This is southern California's loftiest mountain. After an hour there, I started down the Vivian Trail. It was 4:45 P.M. when I arrived at Mill Creek, where I met some kind Sierra Club members, who gave me a ride to Forest Home. R. S. FINK

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ACROSS MATHER PASS WITH DONKEYS

In July, 1930, Herbert Blasdale, Wickson Thomas, and I spent twenty days in the High Sierra, crossing Kearsarge, Glen, Pinchot, Mather, Muir, and Granite passes. We had two donkeys. Mather Pass looked dangerous for horses; but, although difficult, was fairly passable for donkeys; we turned ours upside down only three times. Apparently no one else had crossed with animals since the McDuffie party in 1926, which was traveling in the opposite direction from the one we were taking. (*S. C. B.*, 1927, xii: 4, pp. 417-418.) We climbed Split Mountain, North Palisade, Darwin, and Brewer.

RICHARD M. LEONARD

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CLIMBS BY NORMAN CLYDE IN 1930

Norman Clyde was again active in the Sierra during the year 1930, and, at the request of the editor, has furnished a list of his climbs, with comments.

May—Temple Crag, five ascents; the last, by couloir on northwest face; an excellent climb. 22d—Winchell. 30th—White Mountain (Inyo Range) from Sparkplug Mine; saw a mountain-sheep.

June 5th—The Thumb, by couloir on west face; a good climb. 7th—Middle Palisade, by north face; *one of the best climbs in the Sierra.* 9th—West Peak of the Middle Palisade; first ascent; difficult climb, requiring traverse to north face of ridge west of peak. 14th—Peak at head of Palisade Creek; no cairn; good climb. 15th—Bolton Brown; no record of ascent since Versteeg and Berls in 1922. 17th—Peak 13,046; found Versteeg's register. 18th—Middle Palisade, from south. 19th—West Peak of Middle Palisade, from south; moderately difficult climb. 20th—Disappointment Peak, by northeast couloir; a good climb, with some difficulty at foot of couloir. 28th—Unnamed peak, or spur, northeast of Agassiz; perhaps not the highest point. 29th—Peak in Inconsolable Range, north of Peak 13,210; good climb.

July 1st—Peak, or spur, east of Agassiz; good rock-work; no cairn. 2d—Temple Crag, by Loop Route; very fine rock-climb. 4th—Peak 12,981, north of Palisade Glacier, from northeast; good rock-climb, involving passing or surmounting numerous pinnacles. 5th—Agassiz, from northeast; *one of the finest rock-climbs in the Sierra.* 6th—North Palisade, by north face; on lower portion using west wall of first couloir west of largest on that face; *one of the very best climbs in the Sierra.* 9th—Second highest peak of North Palisade; superb climb; no cairn.

July 10th to October 5th—Numerous ascents of Whitney and Muir by various routes, including ascent and descent of Whitney on northeast via North Fork of Lone Pine Creek, a mountaineer's route; also, from summit of Whitney (14,496) to bottom of Death Valley (minus 276), highest point in United States to lowest, between daybreak and sunset, on foot and by motor.

October 8th—Peak 12,438, north of Lone Pine Creek; one previous ascent, by myself. 9th—Peak 13,571, on main crest, above Tulainyo Lake; one previous ascent, by myself; a good climb.

November 8th—West Peak of Basin Mountain; some rock-work along arête west of summit; no cairn. 9th—East Peak of Basin Mountain; good climbing up south face of summit pinnacle, but easy at west and north; no cairn.

December 3d—Peak 13,474; a long climb from Glacier Lodge; good view. 5th—Temple Crag, by Crevice Route. 12th—Peak 12,840; long climb, but good view of Palisade amphitheater. 17th—Temple Crag, by Crevice Route. 24th—Traverse of Temple Crag; ascent by Crevice Route; descent by difficult route on northwest face.

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Some Early Ascents of Mount Dana

By Francis P. Farquhar

The first record of white men in the vicinity of Mount Dana is the meager information we have of Lieutenant Tredwell Moore's punitive expedition against the Indians in the summer of 1852. Moore's party crossed Mono Pass, and must have been familiar with the appearance of the mountain from three sides; but it is extremely unlikely that any member climbed to the summit. Lee Vining visited the region later the same year and discovered the cañon which bears his name; but he, likewise, was too much absorbed in other matters to have had time for mountain-climbing.* In the ensuing decade the Mono Pass route became well known; John Muir speaks of its discovery by white men in 1858.† By 1863 it was in regular use for packing supplies across the mountains to the Esmeralda mines,‡ and an examination was being made of the gap north of Mount Dana for the purpose of locating a road,§ although such a road was not actually built until twenty years later. It was the California State Geological Survey, under Professor Josiah Dwight Whitney, which first made known to the world the character and topography of this region, and it was members of the Survey who first ascended Mount Dana and gave it its name.

> "After our hasty survey of the Yosemite Valley, in 1863, [writes Professor Whitney,] we followed the trail from there to Mono Lake, camping for about two weeks near the head of the Tuolumne River, and securing the first outline of the geography of that extensive region,

* Bunnell: *Discovery of the Yosemite*, 1880, pp. 277-278; S. C. B., 1928, xiii:1, pp. 83-85.
† Muir: *My First Summer in the Sierra*, 1911, p. 289.
‡ Brewer: *Up and Down California*, 1930, p. 409.
§ Brewer: *Up and Down California*, 1930, p. 408; Whitney Survey: *Geology*, vol. i, 1865, p. 434.

> which had never been laid down with even approximate accuracy on any published map; indeed, so far as we can learn, the higher elevations of this part of the Sierra had never been ascended, certainly not measured or located, previous to our visit. Since that time, however, we learn that Mount Dana has been visited repeatedly, and that our pioneer work in this region has already had the effect to attract quite a number of visitors in its direction." *

The Survey party on this occasion consisted of Professor Whitney, Professor William H. Brewer, Charles F. Hoffmann, and a packer. They arrived at Soda Springs June 26th, and next day camped about three miles from the summit of Mono Pass. Following is Brewer's account of the first ascent of Mount Dana:

> "A high mountain rose on the east, from which we hoped to get important bearings, so on June 28 we were up early and Hoffmann and I started for it—over rocks, ice, and snow. It is over thirteen thousand feet high and afforded a yet grander view than any we had had. The air was very clear, and we remained on the summit over four hours, taking bearings and barometrical observations. Hundreds of peaks were in sight, probably over fifty that are over twelve thousand feet. All north, west, and south was a scene of the wildest mountain desolation. On the east, at our feet, lay Mono Lake, an inland sea surrounded by deserts. A chain of extinct volcanic cones lay to the south of it, while alternate barren mountains and more barren desert plains stretched east to the distant horizon. It is not often that a man has the opportunity of attaining that height, or of beholding such a scene.
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> "Professor Whitney was not well, so he did not go up, but on our return we gave him such a glowing description, and as we had found the climb so easy, he resolved to make the ascent. So on June 29 I returned with him, thus making the ascent on two successive days. He thought the view the grandest he had ever beheld, although he has seen nearly the whole of Europe." †

The experience made a great impression upon Professor Whitney, and in the publications of the Survey he expressed his enthusiasm:

> "But the traveler, desirous of learning something of the grandeur of the mountain scenery of the Pacific side of our continent, [he says,] should not be contented with seeing the Yosemite only; he should push on still farther into the heart of the Sierra, visit the sources of the Tuolumne River, and climb Mount Dana; all of which may be done, even by ladies, without danger and almost without difficulty.‡ [And again:] The view from the summit of Mount Dana is a very extensive one; and, as the ascent can be made without difficulty, all tourists who have any desire to learn something of the grandeur of California scenery should not fail to climb at least this one high point." §

Professor Whitney's exhortations fell upon attentive ears, and in later publications he remarks: "Since the visit of the Geological Survey to this region in 1863, several parties have ascended Mount Dana, riding nearly to the summit

* Whitney Survey: *Geology*, vol. i, 1865, p. 405.
† Brewer: *Up and Down California*, 1930, pp. 408-409.
‡ Whitney Survey: *Geology*, vol. i, 1865, p. 404.
§ Whitney Survey: *Geology*, vol. i, 1865, p. 435.

on horseback, and there can be no doubt that the ascent will, in time, become well known, and popular among tourists." * He recommends a base camp near Mono Pass, "As it is rather too hard a day's work to go from Soda Springs to the summit of Mount Dana and back in a day."

It might be supposed that most, if not all, of these early ascents had passed into oblivion unrecorded, or the records lost. Recently, however, some of the field-notes of the Wheeler Survey (*United States Geographical Surveys West of the One Hundredth Meridian*) have been brought to light, and in the back of a sketch-book used by Topographer J. Calvert Spiller I discovered a list copied by him on September 2, 1878, from the records on the summit of Mount Dana. In some instances the names as written by Spiller are not clear, and doubtless he had some difficulty in deciphering the originals, so that there is a double chance of error in the following list. Nevertheless, it is presented, as well as it can be made out, rearranged in chronological order.

June 28, 1863: J. D. Whitney; W. H. Brewer; Chas. F. Hoffmann—State Geological Survey. Ascended this mountain June 28 and again June 29. Gave it the name of Mt. Dana in honor of J. D. Dana, the most eminent American Geol. Approx. height 13,126.

Sept. 14, 1863: John H. Watts; A. S. Crocker; Wm. L. Bourne; L. M. Robertson; L. Stuart; E. R. Hunt; C. A. St. John—Big Oak Flat, Tuolumne Co.

Aug. 31, 1864: † C. H. St. John; Miss Kate St. John; Miss Olive St. John; Miss Lizzie St. John, 6 years; John F. Haines [?], aged 62; Wm. Arthur—Big Oak Flat. Geo. G. Springer; E. F. Sylvester; J. W. Wood; T. I. Agnew—Garrotte, Cal.

Sept. 7, 1864: David Wood; Charles A. Wood; Nelson H. Wood; Mortimer Wood—Gilroy.

Aug. 1, 1865: Joseph White, Jr.

Aug. 10, 1867: Anne Prevost Pitts, Sonora; Nellie M. Prevost; E. L. Prevost Gunn, San Francisco; Wm. I. Shaw, San Francisco; Jas. R. Owen, Sonora.

Aug. 14, 1870: Eugene A. Poole, Baltimore, Md.; John M. Tracy, Artist, Chicago.

Aug. 21, 1870 (Sunday): Robert Compton, Lyndhurst New Forest, England; John R. Montague, Union Springs, Cayuga Co., N. Y.

July 27, 1871: George Hare & wife; A. E. Pomerry; E. W. Aram [?]; Luther Anderson; Henry S. Riggs; John L. Murphy; Miss Sallie Webb; Miss Flora Wilcox; Miss Linda Armstrong—San Jose Party.

Aug. 15, 1874: Vincent Hook; Charles Overacker; Ryland Wallace; Joseph Welch, Jr.; James M. Wilkins; John N. I. Wilson; George F. Wright—University Camping Party, U. C. '76.

Sept. 2, 1874; Gustav Eisen, Stockholm, Sweden; Friedric Ratzel, Netherlands [?].

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* Whitney Survey: *The Yosemite Book*, 1868, p. 90; *The Yosemite Guide-Book*, 1869, (1870), p. 100; *The Yosemite Guide-Book*, 1871, p. 86; *The Yosemite Guide-Book*, 1874, p. 138.

† Professor William H. Brewer was on Mount Gibbs the same day and saw this party on the summit of Mount Dana. (Brewer: *Up and Down California*, 1930, p. 549.)

July 4, 1875: E. A. Parker; F. P. McLean; F. Slate—The University Scientific Party, Professor Jos. Le Conte.*

July 27, 1875: E. D. Bedfor [?]; Manuel Flores; Juan Secols [?]; Frank Silver; Louis Stever; Julia Tubb; Mary Tinney; Gracie Marsh—O. T.

July 24, 1876: Geo. Bayley, San Francisco; Mrs. Geo. Bayley, San Francisco; Sidney V. Smith, Jr., San Rafael; Manuel Flores.

Aug. 16, 1876: Ernest Steyner, Vordernberg, Styria, Austria; Ferdinand Frunvinth [?], Wien, Austria.

Sept. 20, 1876: Mrs. F. Sprout, 65½ years; Mrs. Sweetland [?]; Mrs. W. M. Smith; Miss H. S. Meager; Miss F. Hutchings, 12 years; James Hamilton; J. M. Hutchings; George Anderson.

July 9, 1877: Robert Scholy, Kansas.

Aug. 14, 1877: F. E. Ferree [?]; F. I. Bailey; Abbie Crippin; F. T. English; I. L. Murphy; O. C. Drew.

There were undoubtedly a number of ascents between 1863 and 1878 of which no record was made or of which the records were lost. Some of these we know about. Another party of the State Geological Survey, consisting of Craven, Coulter, and Harris, climbed the mountain August 31, 1867.† John Muir climbed it September 1, 1869.‡ Joseph Le Conte and "The University Excursion Party" made the ascent August 12, 1870.§

On June 24, 1882, "W. P. B.," of the *San Francisco Chronicle*, climbed Mount Dana and reported: "A neat cairn of rocks, erected by the State Geological Survey, surmounts the summit. Here are stowed away several tin cans, containing fifty-three names of persons who have made the ascent during these nineteen years." ‖ Some of the records evidently had been lost since Spiller's visit in 1878, as more than fifty-three names are preserved in the latter's notebook. When Joseph N. Le Conte visited the mountain in 1889, however, the original record of the Whitney party of 1863 was still on the summit.¶

* Professor Le Conte himself did not make the ascent on this occasion. (Information from his note-book.)

† Letter from Charles F. Hoffmann to J. D. Whitney, Sept. 8, 1867, in possession of the Editor.

‡ Muir: *My First Summer in the Sierra*, 1911, pp. 320-322.

§ Joseph Le Conte: *Ramblings in the High Sierra*, 1930 edition, pp. 94-97.

‖ Truman: *Tourists' Illustrated Guide to the Celebrated Summer and Winter Resorts of California*, 1883, pp. 92-93.

¶ SIERRA CLUB BULLETIN, 1922, xi:3, pp. 246-247.

BOOK REVIEWS

JOSEPH LE CONTE IN THE HIGH SIERRA*

The following review of the Sierra Club's latest publication is reprinted by permission from "The Knave" page of the *Oakland Tribune* of February 1, 1931:

"We may thank the Sierra Club of this city for publishing a little book which has been doubly rare. It is *A Journal of Ramblings Through the High Sierra,* by that well-loved educator who was Joseph Le Conte of the University of California. The original edition of Prof. Le Conte's account of a horseback excursion from Oakland to the Yosemite and beyond was published in 1875. The comparatively few copies were distributed among members of the expedition and their friends. They are extremely scarce now and are to be found in but few libraries. In 1900 the journal was printed in the SIERRA CLUB BULLETIN, and a small number of copies issued in separate form, and this second edition is quite as scarce as the first. Now we have a third edition, some fifteen hundred copies which, I am sure, will be taken up quickly by men who remember Joe Le Conte and those who would read of old days in the Sierra before we had our concrete and all-year roads and when the expedition was a real adventure. The party of ten men, calling itself the 'University Party,' started from Oakland in 1870 and rode all the way to Yosemite, up to the Tuolumne Meadows, down to Mono Lake, to Tahoe and back to Sacramento, where it embarked on a boat for San Francisco. The first night's camp was at Laddsville, which is now Livermore, and there followed a rather trying journey across the San Joaquin, for this was in July of a dry year. The roads were dusty and the heat intense. Grayson, Snelling and the 'almost deserted town of Princeton' were places on the route. A big time was had at Mariposa, and from there, to escape paying tolls, the horsemen rode over Chowchilla Mountain.

"Le Conte describes Yosemite as it was in 1870 and through the eyes of a geologist and naturalist, a man who was new to California and amazed at wonders beyond any of his dreams. There is an account of his meeting with John Muir, 'a gentleman of rare intelligence' who was tending a sawmill in the Valley. In the journal the friendship of the two is developed and some of their discussions concerning the Valley's formations are included. Le Conte wrote an intimate account of the trip, describing his companions and telling of his own reactions. In this day of easy motor journeys to the park, it has a charm in contrast as well as that which is given by the graceful prose and the fine personality revealed.

"Joseph Le Conte came to California in 1869 to take part in the organization of the new University of California which had grown out of the small college at Oakland. He was a native of Georgia and was teaching at South

* *A Journal of Ramblings through the High Sierra of California* by the University Excursion Party. By JOSEPH LE CONTE. The Sierra Club, San Francisco. 1930. x + 152 pages; illustrations. Price, $2.50.

Carolina College during the Civil War. In the Reconstruction days, gloomy enough, he and his brother John learned of the proposed university in this state and applied for professorships to which they were promptly elected. It was a fortunate day for the university. Francis P. Farquhar in his introduction to this latest edition of the journal says that which all who knew him will echo: 'As years went by he came to embody the very ideal of a college professor and his students felt for him an affection surpassed only by their admiration for his scholarship.'

"In the present work is a reproduction of the title-page of the first edition, three of the original illustrations, and a picture of Le Conte as he was in the days of the expedition. For those who may be interested, the Sierra Club's address is 402 Mills Building, San Francisco."

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TWO BOOKS ON THE BIG TREES*

Two volumes of unusual interest were published simultaneously last year — the one, *Big Trees of the Giant Forest,* by Colonel George W. Stewart; the other, *Big Trees,* by Judge Walter Fry and Colonel John R. White. All lovers of the out-of-doors, all lovers of trees, and particularly the Big Trees, will not fail to own and become acquainted intimately with these two volumes. Everything that can be said at the present time in regard to these wonders of nature, the "oldest of living things," has been said in these volumes. It could not have been otherwise. Colonel Stewart, the "savior of the Big Trees," as he is known, lived in intimate contact with them for forty years or more, and has learned to love them and to know them as friends and companions. His monograph, dedicated to the memory of John Muir, leaves one with the feeling that he had just taken a walk through the Giant Forest on a glorious summer day, stopping to examine and talk with his close acquaintances. *Big Trees* is a larger volume, more comprehensive than the monograph of Colonel Stewart. It is written with an enthusiasm, a scientific appreciation, and a warmth of affection that leave nothing to be desired. Not only the Big Trees of Giant Forest, but of all the other forests, are discussed. One may gather the scope of the volume by giving the titles of the fourteen chapters: Significance of the Big Trees; Discovery of the Big Trees; Saving the Big Trees; Big Tree and Coast Redwood; Age of the Big Trees; The Record of the Rings; Size of the Big Trees; The Birth of a Giant; Seedlings and the Sturdy Tree; The Harvest and the First Fruit; The Cone Pigment and Propagation; General Appearance and Foliage; The Bark and the Root System; The Death of a Giant. The reader who has not heretofore given thought to the subject will be amazed to discover how many groups there are and how many Big Trees there are in existence. In addition to the text, *Big Trees* contains a table of the seventy-one groves where the *Sequoia gigantea* occurs, with the name of the forest, the location, the

* *Big Trees of the Giant Forest,* Sequoia National Park, in the Sierra Nevada of California. Their Life Story from the Blossom Onward. By GEORGE W. STEWART. A. M. Robertson, San Francisco, 1930. 105 pages; illustrations. Price, $1.50.

Big Trees. By WALTER FRY, United States Commissioner, Sequoia National Park, and JOHN R. WHITE, Superintendent, Sequoia National Park. Stanford University Press. 1930. Pages, xii+114; illustrations. Price, $2.00.

number of trees, and remarks—making it possible for one to visit and study each grove at his convenience.

It is curious, and indeed fortunate, that Colonel Stewart while preparing his book was unaware of the fact that another on a similar subject was in progress, and, conversely, that Colonel White and Judge Fry were ignorant of what Colonel Stewart was doing. Neither book could well be spared; each is a complement of the other. Colonel Stewart, in his "acknowledgment," pays special tribute to his friend Judge Fry, and the authors of *Big Trees* give deserved honor to Colonel Stewart for his part in saving the trees of Sequoia National Park, a part which the Colonel does not mention in his own book. Both volumes are beautifully illustrated from photographs and are carefully indexed. The authors of these two volumes have laid the public under a heavy debt of gratitude, not only for the scientific data and careful elaboration of all that is known of the Big Trees, but also for showing us a great love which only a few possess. One must know these men to appreciate their work; they are great citizens of our commonwealth who have contributed, by their untiring labors, by their love and their devotion and their loyalty, a wealth of invaluable material which will form almost the last word upon this intensely absorbing subject.

GEORGE C. THOMPSON

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CLOUDS* Professor Alexander McAdie, well known to fellow Sierra Club members when he was in charge of the Weather Bureau in San Francisco, now Professor of Meteorology at Harvard, has added a brief treatise on clouds to his other works on subjects related to his profession. The present book is principally a pictorial record of cloud forms. The pages of text are devoted to clouds in classical literature, to methods of cloud classification, and to mention of recent cloud books. Most of the photographs were taken by Professor McAdie, and several of them are of local interest, for they include views of fog formation in the Mount Tamalpais region, and one, taken in San Francisco, showing a squall cloud over the bay. Others of unusual character are views of lightning-flashes, snowflakes, and frost-crystals; there is also an exceptional photograph, by the Navy Bureau of Aeronautics, showing a so-called waterspout.

If this book stimulates a desire for further enlightenment, there is plenty of material available—not only that mentioned in the text, but more general works as well. Those who pursue the subject for the first time may be surprised to find such comprehensive and fundamental studies in existence as Humphrey's *Physics of the Air*. They may be surprised also to find that meteorologists are deeply concerned with atomic physics, and that, as Professor McAdie says in the report of the Blue Hill Meteorological Observatory for 1929, meteorologists are "approaching a solution of the structure of the universe by knowledge gained from investigating processes of manufacture of atoms in the upper air, and the transformation of radiation into protons and electrons." There are other aspects of the subject toward which thought is

* *Clouds*. By ALEXANDER MCADIE. Harvard University Press, Cambridge. 1930. 67 pages, 10" x 12"; illustrations. Price, $5.00.

stimulated by Professor McAdie's publications. It is difficult to understand why the cloud forms in our high mountain country have been so long neglected by photographers. Surely with modern emulsions and filters there are no longer technological reasons for such neglect. If further inspiration is needed, the pages of John Muir abound with poetic examples such as these:

> ". . . a richly modeled cumulous cloud rising above the dark woods . . . poised in the blazing sunshine like some colossal mountain, as beautiful in form and finish as if it were to become a permanent addition to the landscape. . . .
>
> "When the glorious pearl and alabaster clouds of these noonday storms are being built I never give attention to anything else. No mountain or mountain-range, however divinely clothed with light, has a more enduring charm than those fleeting mountains of the sky. . . ."
>
> —*The Mountains of California*, pp. 271-272.

> ". . . sky mountains in whose pearly hills and dales the streams take their rise . . . No rock landscape is more varied in sculpture, none more delicately modeled than these landscapes of the sky; domes and peaks rising, swelling, white as finest marble and firmly outlined, a most impressive manifestation of world building."
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> —*My First Summer in the Sierra*, pp. 24-25.

E. A. MAYERS

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DEATH VALLEY: THE FACTS* The growing importance of the Death Valley region in the eyes of tourists and nature-lovers has recently been emphasized by the appearance of the first book to bring together under one cover an epitome of all the important facts, historical, geographical, and scientific, concerning that remarkable region. Strange as it may seem, the hitherto published information respecting Death Valley has been scattered through many books and more ephemeral material, and much of what had been published was of the character known as "remarkable, if true"—and usually not. Now we possess two books which together give the picture as it should be given: Manly's *Death Valley in Forty-nine*, one of the great classics of the westward trek, and this new volume, in which Mr. Chalfant, already well-known on account of his *Story of Inyo* and *Outposts of Civilization*, brings together interestingly and authentically, but without the romantic embellishment which has marred certain other works, the known facts about this unusual desert region.

The illustrations, largely from the work of Burton Frasher and Stephen Willard, accompanying this work are well chosen and exceptionally well printed. Indeed, the book discloses throughout the typographical care and skill which is being given to the productions of the Stanford University Press. An excellent "cartograph," or birds-eye-view map, of the Death Valley region has been made by Mr. Lewis of the Press and a thorough index assists in the discovery of special items of interest. Mention should also be made of another work on this region which made its appearance almost simultaneously with Mr. Chalfant's book—*Death Valley*, by Bourke Lee. Mr. Lee writes enter-

* *Death Valley: The Facts.* By W. A. CHALFANT. Stanford University Press. 1930. Pages ix+155; illustrations. Price, $3.50.

tainingly, but the book is of a more "popular" character than that of Mr. Chalfant, to whom the person seeking for facts rather than romance will unquestionably turn.

CARL I. WHEAT

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UP AND DOWN CALIFORNIA* It is to be doubted whether in these days of radios and racketeers there is leisure for discursive letter-writing such as Brewer's, which gives us an intimate picture of post-gold-rush California. In the towns such as Visalia in the early 60's, where Brewer wrote letters perforce—there being nothing else to do—theaters of the talking screen and automobile drives on paved highways might prove more attractive than a stuffy hotel-room with a temperature in the early hundreds, and paper, pen, and ink. But whether roasting in the summer heat of the interior valleys or shivering in the coastal fogs or in High Sierra snow-storms, Brewer was a faithful and accurate correspondent, noting Los Angeles as a century-old Spanish-Mexican city of some four thousand inhabitants with sunsets of a beauty surpassing those seen in other parts of the world; San Luis Obispo as a small miserable place; the great rains of 1861-1862, and the great drought of 1864; rattlesnakes, grizzly bears, whales, and condors; crumbling Spanish missions and bustling San Francisco; the tropical scenes on the Panama and Nicaragua routes to and from California; together with a wealth of detail and description which adds materially to our knowledge of a period of Californian history neglected as compared with the more glamorous days of '49.

Brewer was a member of the first geological survey of the state, under the direction of Professor Josiah Dwight Whitney, and, although he was primarily in the field as a scientist, he was a keen observer of men and manners and of nature in all its varied forms. He notes at Acapulco that "some of the girls were quite pretty," or in California that "some of the Spanish girls are pretty, especially the eyes, hair, and teeth." In camp he sees "one star just trembling over the brow of that rugged mountain." He well compares his first close view of the High Sierra at Porcupine Flat with the Swiss Alps: "The scene has none of the picturesque beauty of the Swiss Alps, but it is sublimely grand." Or when he contrasts the California climate with that of New England: "This is the climate for a lazy man, that for labor, this for *dolce far niente*, that for *action*." There is encouragement for the arid California of today in the statement that at Los Angeles in 1860 "it rained seventy hours without cessation and for forty hours like the hardest thunderstorm at home"; and in his impressions of the great flood at Sacramento in 1862, when the whole interior valley was under water. And then the drought of 1864, and the carcasses of thousands of cattle strewn over the burning plain. Brewer fills the book with *genre* pictures of the trail and his interesting comments, as when he, in the act of washing his clothes, is discovered by two women on horseback "practising the art of *vaqueros*," causing reflection upon the doctrine of Woman's Rights.

* *Up and Down California in 1860-1864.* The Journal of WILLIAM H. BREWER, Professor of Agriculture in the Sheffield Scientific School, from 1864 to 1903. Edited by Francis P. Farquhar, with a Preface by Russell H. Chittenden. Yale University Press, New Haven. 1930. Pages XXX+601; illustrations. Price, $6.00.

Those who love best in California the High Sierra will, of course, find the journals of 1863-1864 the most interesting, for they describe visits to Yosemite, the General Grant Grove of Big Trees, Kings River Cañon in pre-tourist days, as well as the first explorations by white men, or at least by scientists, of the High Sierra of the Kings River and the San Joaquin. But there is scarcely a dull page in the whole book, and the reader soon becomes absorbed in the narrative, in the adventures and discoveries of Brewer and his companions of the Survey, Hoffmann, King, and the others, not to mention the faithful mules and horses. Indeed, when, in November, 1864, he bids farewell at San Francisco to "dear Hoffmann," one feels the loss of a personal friend, and comprehends the grief at parting from a companion of thousands of miles of trails and hundreds of camp-fires.

The book is happily titled, the journals are happily written, and as happily edited. The illustrations, chosen from contemporaneous photographs, sketches, and prints, help to convey an atmosphere of early Californian men, scenery, and activities. The illuminating, but not intruding, notes at each chapter end are of the greatest assistance to an intelligent understanding of the book, providing information without interrupting the continuity of the narrative. In fact the editing, general composition, and appearance of the book leave nothing to be desired.

JOHN R. WHITE

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ANNUAL REVIEW OF SKIING*

Something definitely new and refreshing is growing into our outdoor life—new for us, and not so very old at that in Europe—the winter sport of skiing, which is claiming our increasing attention. Skiing—for the simple joy of swiftness and controlled technique, for long cross-country runs, for competitive skill, for winter ascents of major peaks, the last especially applicable to the Rocky Mountains, the Cascades, and the Sierra Nevada. Our national winter-sport organization is still in the formative state, and our ski areas, while of potential vast extent, are barely touched as yet, and the facilities thereof accordingly undeveloped. However, as the seasons pass, we are aware of an increasing appreciation of the sport of skiing in all its forms and a steady progress toward maturity.

A fundamental necessity in the development of any universal sport is an underlying spirit of dignity and serious intention. This spirit is admirably expressed in the joint publication of The Ski Club of Great Britain and The Alpine Ski Club, modestly entitled *The British Ski Year Book*, now in its fifth volume. To those who are familiar with the subject no further comment is necessary than to say that it is edited by Arnold Lunn, for he represents the finest aspects of the mountaineering and skiing world. It is composed of a generous number of well-written articles dealing with skiing in all parts of the world, with technique, and with general information vital to the subject. There are, also, many reports on ski-meets and general activities, and many comments and reviews. There are an extraordinary number of admirable

* *The British Ski Year Book*, vol. v, no. 11, 1930. Edited by ARNOLD LUNN. The Ski Club of Great Britain, 14, Great Smith Street, London, S. W. 1. Pages, i-lviii+375-828; illustrations. Price, 10 shillings.

illustrations. Nor should the quality of the advertisements fail of mention; our American business men and hotel operators might benefit greatly by a careful study of the presentations of their European colleagues.

ANSEL E. ADAMS

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ANIMAL LIFE OF THE YELLOWSTONE* Yellowstone National Park was established three-quarters of a century ago, primarily because of the spectacular geysers and hot springs, the colorful Yellowstone Canyon, beautiful Yellowstone Lake, the remarkable standing fossil forests, and other unique natural features. At that time, and during the next few decades, the wild life of the park was regarded as of subsidiary importance. Years of unusual freedom from being hunted by man and chased by dogs or cats have resulted not only in a remarkable increase in the bird and mammal population, but also in a change from timidity to confidence on the part of both large and small residents of the park. At the present time there is no other area of equal size in the United States, or even in North America, where the native animal life is so abundant and unafraid as in Yellowstone National Park.

During the recent years that the National Park Service has made a special effort through lectures and field trips conducted by ranger naturalists to interpret the natural features of the park, it has been realized that visitors are as much interested in bears, buffalo, and other forms of life as they are in the more spectacular thermal phenomena.

Nevertheless, until the present time no comprehensive reference-book has been available on the birds and mammals of the region. Dr. Bailey's book is, therefore, most welcome. Comprehensive and scientifically accurate, it is written in a popular style which makes it intensely interesting to everyone. It is one of the finest additions to national park literature in recent years.

ANSEL F. HALL

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PHOTOGRAPHING DEER AT NIGHT † This is an attractive illustrated book on a specialized subject. In the first chapter the author presents a summary of previously published data on the life history of the northern white-tailed deer. The remainder of the volume records his interesting experiences in photographing deer and moose at night in the woods of the Upper Peninsula of Michigan. The book vividly pictures the difficulties under which Mr. Gregory worked in securing his remarkable photographs, and brings out certain facts which add to our knowledge of the reactions of the white-tailed deer in its unprotected habitat. The volume is somewhat limited in scope, but is recommended to those who are specially interested in the subject which it covers.

ANSEL F. HALL

* *Animal Life of Yellowstone National Park.* By VERNON BAILEY, Chief Field Naturalist of the U. S. Biological Survey. Charles C. Thomas, Springfield, Illinois. 241 pages. Price, $4.00.

† *Deer at Night in the North Woods.* By TAPPAN GREGORY. Charles C. Thomas, Springfield, Illinois. 211 pages. Price, $4.00.

Bibliography on American Game Animals*

The rising tide of literature on game problems has all but swamped the many students who are endeavoring to keep up with this important subject. Dr. Phillips is peculiarly fitted for the authorship of such a volume, being an ardent sportsman, with wide travel experience, an untiring worker for sound conservation, and the author of numerous articles and several books, including an authoritative four-volume work on the ducks of the world. The library on sport and travel of the late Charles Sheldon formed the nucleus of the present bibliography; the catalogue was developed with aid from the Boone and Crockett Club. Miss Ruth Richards, of Washington, D. C., did the detailed cataloguing, and the compilation was scrutinized by several competent authorities in the federal service. The general catalogue (pages 11-418) includes everything from exhaustive monographs to brief pamphlets, scientific treatises, accounts of travel, with incidental mention of hunting experiences, and even circulars issued by sporting-goods manufacturers and fur-buyers. Many of the items are provided with critical annotations. The second part (pages 419-573) deals with conservation—general, federal, state, and Canadian. The book closes with two lists of periodicals—one of scientific journals (pages 575-613), the second on outdoor sports, shooting, fishing, and camping (pages 613-639). Many of these entries form adequate collations of periodicals which are difficult of analysis from a bibliographic standpoint. Students of the out-of-doors will find Dr. Phillips' bibliography an indispensable library reference work.

Tracy I. Storer

Golden Gate Park Birds†

The development of Golden Gate Park in San Francisco from an area of sand-dunes to an elaborate and diversified garden for outdoor recreation has been a notable achievement in applied plant ecology. With the growth of appropriate plant cover and the making of artificial lakes, an increasing number of birds, both as to species and individuals, have come to inhabit the park. Various records and lists of birds observed in the park have been published in bird journals, especially in *The Condor;* but now, for the first time, an authoritative independent manual is available. Mr. Joseph Mailliard, the author, long a student of California birds, was assisted in gathering local data by Miss Cornelia C. Pringle, Mrs. Inez Mexia, and Dr. H. C. Bryant. Mr. Frank Tose and his son Cecil prepared the ninety-four black-and-white illustrations. For each species there is a brief description, with emphasis on characters usable in field identification, a statement as to season and place of occurrence, and a concise paragraph on habits and voice. There are 110 native species listed, and brief mention is made of eleven introduced water-birds in addition. Since most of the common species of birds occurring in the San Francisco Bay region are included, the manual should serve the field needs of many students and out-of-doors folk for a wider area than originally intended.

Tracy I. Storer

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* *American Game Mammals and Birds.* A catalogue of books, 1582 to 1925. Sport, Natural History, and Conservation. By John C. Phillips. Houghton Mifflin Co., Boston. 1930. Pages, [9]+3—638+1. Price, $10.00.

† *Handbook of the Birds of Golden Gate Park, San Francisco.* By Joseph Mailliard. California Academy of Sciences, San Francisco. 1930. 84 pages; illustrations. Price, 75c.

MAROONED IN CRATER LAKE* Professor Alfred Powers, of the faculty of the University of Oregon, has published six ingenious short stories under this title. These little stories are about pioneer conditions and about the outdoors. While the book is suited for grown-ups, yet it will appeal particularly to the young. The opening story is very cleverly worked out, and the clever way in which a boy marooned in Crater Lake is able to get help just as the caretaker at the lodge is leaving for the winter will appeal to young and old alike. There is a closing chapter by J. W. Booth about the intervisibility of Mount Hood and Mount Shasta. This will appeal particularly to readers of the SIERRA CLUB BULLETIN. *Marooned in Crater Lake* is artistically printed and published by the Metropolitan Press, of Portland.

LEWIS A. MCARTHUR

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CLIMBS ON MONT BLANC† The climbs described by the brothers de Lépiney appear to exemplify almost, if not quite, the ultimate development of modern mountaineering technique. One may well inquire, what is the object of making these climbs? And, having made them, what is the value in telling of them? A sufficient answer to the first question may be found by reading the book—the climbs were made because the climbers enjoyed them. However incomprehensible it may appear to the non-mountaineer, these men found the joy arising from a sense of competency and the joy of victory—victory over themselves, as well as over the elements of nature—far more than compensation for the momentary trials of a sleet-storm or a night out on the rocks without shelter. As to the value of telling of these climbs: that, perhaps, is a debatable question. The reviewer for the *Alpine Journal* wonders whether the authors, "fearless and accomplished as they are," have not "incurred a grave responsibility toward . . . the younger school of mountain-scramblers throughout the world." If these accounts incite to emulation of results without corresponding emulation of training and technique, yes. But in this part of the world there can be nothing but profit accruing from a reading of this book. For, so far as is known, there has not yet been a climber in our western mountains who has attained to anything that can be compared to the skill of these alpinists; consequently, their achievements can serve only to indicate the possibilities that lie in the acquisition of correct technique. It might be added that to those who have never attempted difficult rock-climbing these narratives will read like fairy-tales. The initiate, however, will recognize in them remarkably clear and straightforward explanations of difficult, and at times hazardous, performances. He will, moreover, salute the modesty as well as the intrepidity of the authors.

FRANCIS P. FARQUHAR

* *Marooned in Crater Lake.* Stories of the Skyline Trail, the Umpqua Trail, and the Old Oregon Trail. By ALFRED POWERS. Metropolitan Press, Portland, Oregon. 1930. 177 pages. Price, $1.75.

† *Climbs on Mont Blanc.* By JACQUES and TOM DE LÉPINEY. Translated by Sydney Spencer. Longmans, Green & Co., New York; Edward Arnold & Co., London. 1930. xii+179 pages; illustrations. Price, $4.20.

GUIDE TO THE BIG TREE PARKS* This pocket guide-book is admirably adapted to introduce the new arrival to the beauties and wonders of General Grant National Park and the Giant Forest region of Sequoia National Park. It is particularly well suited to the motorist who wishes to make these spots ports of call for a few days in order to wander through the groves of *Sequoia gigantea* and absorb something of their spirit of calm and composure before rejoining the hum of the road. Trails and views are described in full detail and many a point is indicated that might otherwise be passed unobserved. The little vignettes which serve as illustrations are excellently done.

FRANCIS P. FARQUHAR

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LILIES OF THE FIELD † California is rich in varieties of lilies, and may remain so in quantities if people can be educated to refrain from picking the flowers. In practically all instances the wild flowers of the lily family reproduce only from seed, as the bulbs die naturally after a few years. Therefore it is incumbent upon lovers of these flowers to see that the seed-stock is not depleted. If every motorist could but glance at Mr. Fultz's manual before setting out upon the road the destruction would cease almost at once, for he describes the individual charm of each variety in such a way as to arouse in the reader a desire to search out each one and make its acquaintance, and the desire to enjoy, study, and cherish the growing plant supersedes the impulse to pluck.

FRANCIS P. FARQUHAR

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THE HIMALAYAN JOURNAL ‡ A welcome addition to the field of mountaineering and geographic literature is found in *The Himalayan Journal,* the records of The Himalayan Club. Two volumes have already appeared, and a third is due in April, 1931. The club was formed three years ago, "To encourage and assist Himalayan travel and exploration, and to extend knowledge of the Himalaya and adjoining mountain ranges through science, art, lierature and sport." Judging from its publications, the club is an exceedingly active one, with capable officers and committees. The *Journal,* edited by Major Kenneth Mason, is attractive in form, well illustrated, and replete with the most fascinating and valuable material of a remarkably varied character. Bird life, botany, mineralogy, physiography, exploration, mountain-climbing, hunting, folk lore, biography, nomenclature—these, and other subjects, find adequate treatment at the hands of writers who manifestly speak with authority. One is tempted to comment more specifically, but space is wanting at this time. Through the courtesy of exchange of publica-

* *Guide to Sequoia and General Grant National Parks.* By ANSEL F. HALL. National Parks Publishing House, Berkeley, California. 151 pages. Price, 50 cents.

† *Lily, Iris, and Orchid of Southern California.* By FRANCIS M. FULTZ. Spanish-American Institute Press, Gardena, California. 1928. 135 pages; illustrations. Price, $3.00.

‡ *The Himalayan Journal.* Records of the Himalayan Club. Edited by KENNETH MASON. Thacker, Spink & Co., P. O. Box 54, Calcutta, India, (W. Thacker & Co., 2 Creed Lane, Ludgate Hill, E. C. 4, London). Vol. I, April, 1929, 150 pages; vol. II, April, 1930, 206 pages. Price, 5 rupees, or 8 shillings, each.

tions, *The Himalayan Journal* is on hand in the library of the Sierra Club, where members, and the public as well, are always welcome.

FRANCIS P. FARQUHAR

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GEOLOGY OF YOSEMITE* For several years those who have known that the work was in progress have been eagerly awaiting the publication of Mr. Matthes' *Geologic History of the Yosemite Valley*. Its recent appearance, as a Professional Paper of the United States Geological Survey, more than fulfills expectations. It comes too late for adequate review in this number of the SIERRA CLUB BULLETIN, but a full discussion is promised for next year's magazine number. Meanwhile the acquisition of this valuable volume is heartily recommended to members of the Sierra Club. Copies may be obtained from the Yosemite Natural History Association, Yosemite, California, as well as from the Superintendent of Documents, Washington, D. C.

FRANCIS P. FARQUHAR

* *Geologic History of the Yosemite Valley*. By FRANÇOIS E. MATTHES. United States Department of the Interior, Geological Survey. Professional Paper 160. Government Printing Office, Washington. 1930. vi + 137 pages; illustrations, maps. Paper covers. Price, $1.10.

Publications of the Sierra Club for Sale

A Journal of Ramblings Through the High Sierra of California.

By JOSEPH LECONTE

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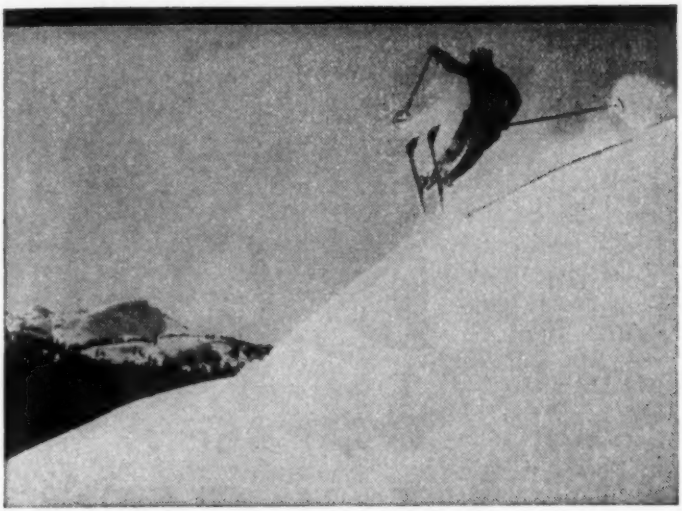

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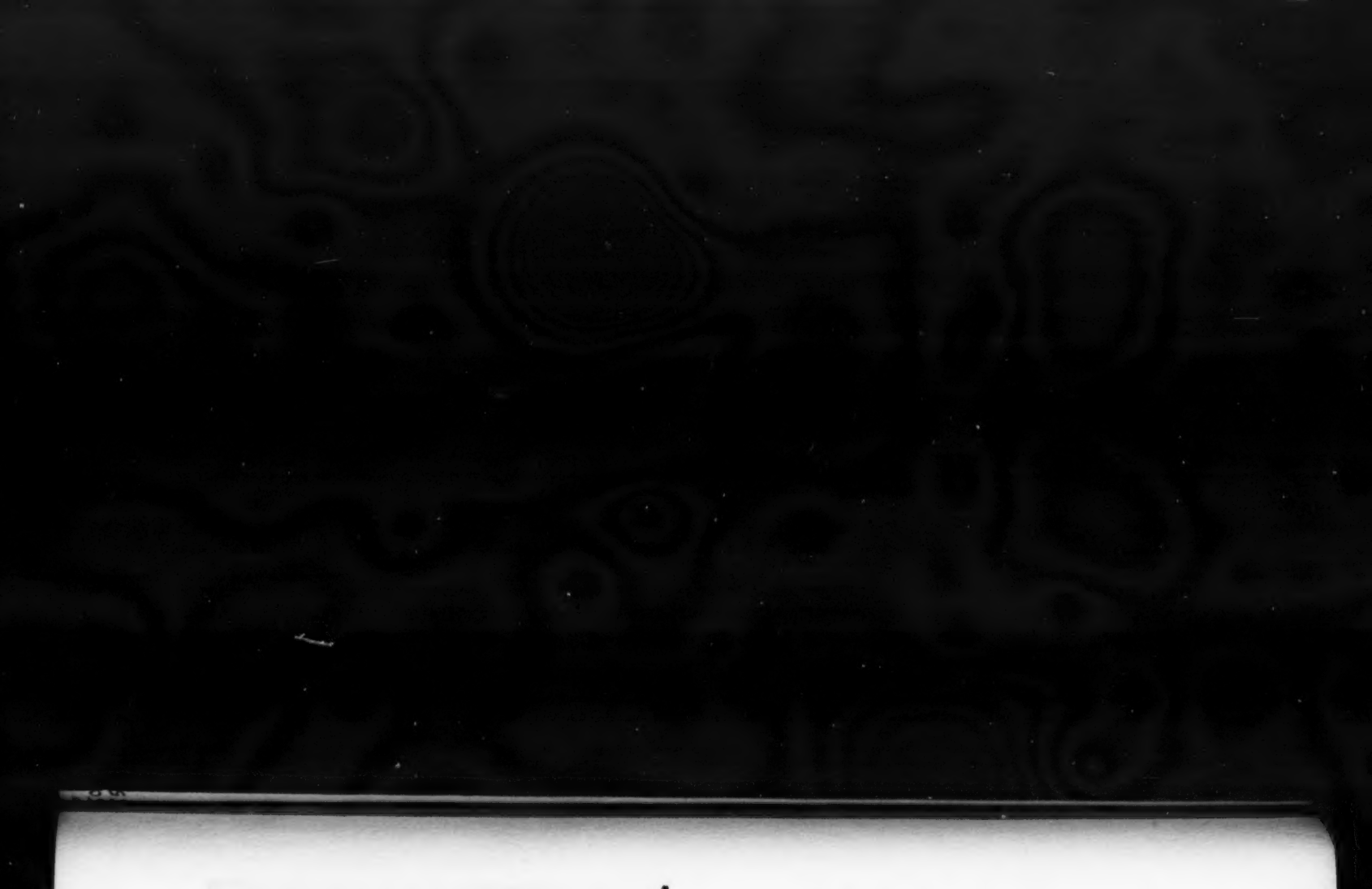
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